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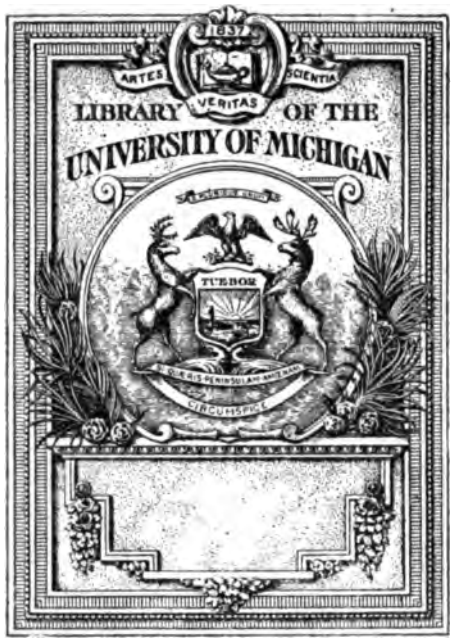
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of the

# Straits Branch

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**JUNE 1904**

STRAITS BRANCH

ROYAL ASIATIC SOCIETY

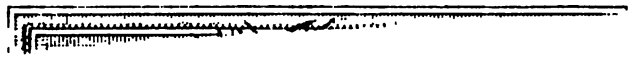
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June, 1904

Agents of the Society

London: Kegan Paul, Trench, Trübner & Co.



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# Errata.

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Page 7, 6th line „ "Plate VI" „ "Plate VII."
Page 12, in foot note „ "Kenyah-Kyan" „ "Kelamantan."
Page 22, bottom line „ "Stopes" „ "Stops."
Page 32, 7th line „ "Plate VIII, figs. 11 and 21"
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*read* "Plate IV, fig. 11."
Page 53, 8th line from bottom *for* "*tangkat krutak*"
*read* "*tongkat krutak.*"
Page 54, lines 13, 24 and 30 *for* "finical" *read* "finial."

# An Illustrated Catalogue of the Ethnographical Collection of the Sarawak Museum.

## *INTRODUCTION.*

The nucleus of the ethnographical collection of the Sarawak Museum is a collection made by Mr. Hugh Brooke Low, during the greater part of his service under the Sarawak Government (1869-1886); Mr. Low made full use of his opportunities and got together nearly 500 different objects of ethnographical interest chiefly from the natives of the Rejang and Batang Lupar rivers. The collection was sent to England and for some time was exhibited at the South Kensington Museum. In 1887, however, His Highness the Rajah of Sarawak purchased the collection, and in 1891 it was deposited in the newly-opened Sarawak Museum. To this nucleus have been added by constant additions nearly 1,500 specimens and so recently as 1899 a competent critic was able to assert that the Sarawak Museum contained "the best and most instructive collection of Sarawak ethnography extant" ("Nature" Aug. 31st 1899, p. 415.)

Unfortunately the Museum is but rarely visited by serious students of anthropology and as with the exception of Ling Roth's "Natives of Sarawak and British North Borneo" and one or two papers by Hein (Vienna, 1890), the culture-history of the Borneans has never been adequately pictured, it seemed advisable to compile an illustrated catalogue of this fine ethnographical collection, so that those interested in the natives of Borneo might have some sort of picture of them even if a more personal acquaintance was out of the question.

Even in Sarawak, well-protected as it is against European exploitation, great changes have taken place amongst the natives within the last thirty years; the great incursion of Chinese has

had its effects; the dominant Sea-Dyak has increased enormously in the Rejang River, driving the Kyan, Kanowit and other tribes less robust than himself before him, so that the ethnographical variety of the chief river of Brooke Low's collecting area is now sadly diminished; finally the influence of the European on the change of native habits must not be left out of account.* The catalogue, then, is not begun a day too soon, reliable information on many specimens must be obtained now, or before many years it may be too late. As it is, the Srus, a tribe apparently allied to the Tanjongs, living near Kalaka, have forgotten all their old customs and culture, a fragmentary language alone remaining to suggest a less ignoble past; whilst the Tanjongs themselves, thanks to the gin-bottle and the immorality of their women are rapidly drawing near to the abyss of extinction. The project of such a catalogue as this was for some time in my mind, but the ways and means of production were difficult to find. However, at the end of 1902 the Council of the Straits Branch of the Royal Asiatic Society generously came to the rescue and the catalogue will be published in parts under their auspices.

The ethnographical collection now to be catalogued cannot claim to be absolutely complete, and there are many specimens scattered amongst European Museums which are unrepresented in the Sarawak Museum. These will be alluded to in the catalogue whenever possible and specimens known to the writer but unrepresented in any museum will also be noted. No particular order in the series of objects described will be observed, but each part will be produced as soon as it is ready. I have been fortunate in securing the collaboration of Dr. C. Hose, Resident of the Baram district, in at least one part of the catalogue and other local authorities have been as generous in supplying me with information as they have been in obtaining specimens for the Museum.

* To give a concrete example of change:—It is no longer easy to obtain specimens of the *niabor* a variety of short sword formerly much in use amongst the Sea-Dyaks, the *jimpul and tilang kamarau* are much more common, the former was invented less than 20 years ago, the latter only last year. Numerous other examples might be quoted.

PART I.

# Musical Instruments.

By R. Shelford, M.A., F.L.S., etc.

*Curator of the Sarawak Museum.*

The musical instruments of the Bornean tribes fall naturally into four main groups:—

1. Stringed instruments.
2. Wind instruments.
3. Jews harps.
4. Instruments of percussion.

They are described in this order. Each group can be subdivided into classes and under the class-headings are described the different 'species' frequently represented by more than one specimen. In addition to describing each specimen fully, I have quoted its number in the Museum catalogue and have recorded how and when it came into the possession of the museum; all measurements are given in centimetres. It will be seen that the Museum is indebted to many friends for valuable specimens; as it would be tedious to detail here all their names, I must express my thanks to them as a collective body; the names of Mr. D. J. S. Bailey, of the Sarawak service and Mr. E. W. Byrde, of the Borneo Co., cannot however pass without special notice, as to these two gentlemen I am indebted not only for many interesting and opportune specimens but also for much valuable information concerning them. My friend Mr. H. Balfour, curator of the Pitts-Rivers Museum, Oxford, has given me much useful advice and help, and his papers on musical instruments have served as models which I fear that nevertheless I have but imperfectly copied.

## *STRINGED INSTRUMENTS.*

There are four main classes of stringed instruments in use amongst the tribes of Borneo*:—

I. Primitive musical bow—perhaps the progenitor of
II. Fiddles and guitars.
III. Upright harps.
IV. Cylindrical harps.

### Class I.—Primitive Musical Bow.

This instrument is used only by the Tanjongs, a small isolated tribe living at Kapit, Rejang River, Sarawak. It consists of a flattened bow (*busoi*) with a rattan string laid across a pot of earthenware or metal, the mouth of the pot being closed by a wooden diaphragm (*aran*); the handle of the bow is grasped in the right hand and the taut bow string is tapped with a short stick held in the left hand; different notes can be produced either by fingering the string or by moving the bow so that different parts of its arc rest on the wooden diaphragm closing the pot. A very fair volume of sound can be produced. Until quite recently no specimens of this interesting musical instrument had found their way to European Museums, but there are now examples in the Anthropological Museums of Oxford and Cambridge Universities. The "Natural History of the Musical Bow" by H. Balfour (Oxford, 1899) should be consulted for a full and detailed account of the geographical distribution and evolution of this primitive type of musical instrument.

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* Dr. A. W. Nieuwenhius figures in "In Centraal Borneo" Vol. II Pl. LVII a Kayan girl beating with a stick on a string stretched longitudinally across a shield and bridged up with two cylindrical wooden plugs at the end; underneath the plate is printed "Het Voordragen van zangen, de overleveringen van den stam, behelzende ":—i.e. the overture to a song, delivered by the assembled tribe."

But there is no reference to the illustration in the text and I believe that this is merely an improvised musical instrument, and one seldom in use.

1 Tanjong—*Busoi and Aran.*

*a.* (Plate I, fig. 1, upper specimen).

The *busoi* is a slightly bowed slat of hard black wood 93·6 cm. long and 4·4 cm. broad about its middle. One end is fretted and moulded and forms the handle, the other end has one border slightly excavated in the way shown in the figure. A strip of split rattan is strung through a hole near the handle and laced through two holes near the other end.

The *aran* is a disc of wood, 28 cm. in diam. with a large hole in the centre; the border for a depth of 2.5 cm. has been sloped down and a dog's tooth pattern is cut in low relief on it, the back ground being stained black with soot or indigo.

Catalogue No. 59. Brooke Low collection.—This specimen has been figured in "The Natives of Sarawak and British North Borneo" by H. Ling Roth, 1886 Vol. II p. 260, and in "The Natural History of the Musical Bow" by H. Balfour (1899) p. 69, fig. 49; the latter illustration is taken from a photograph of this specimen in the possession of Sir Hugh Low.

*b.* (Plate I, fig. 1, lower specimen).

The *busoi* is of soft white wood, 82·3 cm. long and 4 cm. broad in the middle. The concave side has a geometric pattern cut in bas-relief, the outstanding background being stained red with dragon's blood; the handle is unstained, it is moulded and fretted forming an S-shaped curve; the opposite end has its borders notched and curved, it is stained with dragon's blood and has a rosette (*buah trong*) cut in it. A strip of rattan is strung through a hole near the handle and laced through two holes near the distal end.

The *aran* is a disc of wood 30 cm. in diam. with an incised phyllomorphic pattern surrounding a central rosette; it is not perforated. The rattan *plectrum* is 31 cm. long. The pot over which the *aran* is laid is a common bazaar pot of Chinese make, light-blue in colour and glazed; 22·5 cm. diam.; 13 cm. high.

Catalogue No. 1230. Hon. H. F. Deshon, [P. i. 03]

## Class II.—Fiddles and Guitars.

This main class may be subdived into two sub-classes :—

(*A*) Fiddles with straight wooden stem transfixing a resonator usually made from a hollowed-out coconut shell or gourd, and with one or more strings. Such are the one stringed *enserunai* of the Sea-Dyaks and the *sigittuad* of the Land-Dyaks and the two- or three-stringed *engkerbap* of the Sea-Dyaks. The performer on any of these instruments sits on the ground and holding the stem of the fiddle in his left hand rests the resonator against the calf of his left leg or else grasps with his toes the part of the stem that projects through the resonator; the string is sawed with a very simple bow (*pengayat*) held in the right hand; generally no sound can be produced until the string has been well moistened with saliva and even then the volume of sound is not great. The Sea-Dyaks imitate on the *enserunai* the dirges sung at deaths and at burial.

(*B*) Guitars, cut out from a solid block of wood, the resonator being hollowed out either from the back or from the front, and with from two to six strings, which are *strummed* with the fingers. Examples of such instruments are found amongst the Kayans, Kenyahs, Malohs, Dusuns, Malays, and Sea-Dyaks, the latter people having probably borrowed from the Malohs. The fiddle figured by Ling Roth l.c. Vol. II, p. 262 is undoubtedly Chinese; numbers of these are made in Hong-Kong for export and can be bought any day in the Sarawak bazaars. The Malay fiddle figured on p. 266. Vol. II. of Ling Roth's work is Javanese and though the instrument is described as being of Borneo make, it cannot be regarded as typical of Borneo Malays. A very similar specimen bought from a Bugis is in the Raffles Museum, Singapore.

### *A. FIDDLES.*

1. Sea-Dyak—*Enserunai* (Plate I, fig. 2.)

*a.*—(Second specimen from the left.)

Stem straight, transfixing the resonator and projecting considerably beyond; the head is flattened and slightly enlarged; its front border notched and moulded. The resonator is half a gourd (*genok selaing*), the bottom is perforated; a diaphragm of monkey skin is lashed on with a rattan binding and tightened up with wedges (Plate VII, fig. 1). The string which is of rattan

(*rotan sega*) at one end is looped over the part of the stem which projects beyond the resonator and passes from this point of attachment to the lower part of the head of the stem which is deeply grooved longitudinally; the string runs along the groove and out through a hole at the side and is then wound round the head (Plate VI, fig. 2); a notch on each side of the groove is evidently intended for the reception of a cross-bridge. There is no bridge for the string opposite the resonator. A bracing string of grass is present. The bow is of bamboo with a grass string. Total length of fiddle 68 cm.; diameter of resonator 9·5 cm.

Catalogue No. 55. Brooke Low Collection.

*b*. Stem straight of a hard dark wood, transfixing resonator and projecting considerably beyond. The head is not expanded; the front of the stem has a deep longitudinal groove for the greater part of its length; there are some shallow transverse grooves and incised lines distad and proximad of the longitudinal groove by way of decoration. The resonator is half a gourd, closed by a diaphragm of wood luted on with dammar, the bottom is perforated. The rattan string at one end is looped round the part of the stem that projects beyond the resonator, at the other it is wound round a slip of wood driven transversely through the stem (Plate VII, fig. 3) there are notches on each side of the groove for the reception of a cross-bridge. Two bracing strings of grass. Bow of bamboo, with grass string. Total length 60.5 cm., diam. of resonator 11.5 cm.

Catalogue No. 56. Brooke Low collection. This specimen has been figured by Ling Roth (l. c. Vol. II, p. 260).

*c*. (1st specimen on right). Stem straight, hemispherical in section, of a brown soft wood, transfixing resonator and projecting considerably beyond it, the head of the stem is enlarged flattened and bent forward at an angle to the stem, each side is carved in low relief with a phyllomorphic pattern and painted in three colours, red, yellow, and green. The resonator is half a cocoa-nut shell closed by a diaphragm of wood luted on with dammar; one of the "eyes" of the cocoa-nut has been bored forming an orifice at the bottom of the resonator. The

rattan string at one end is looped round the part of the stem that projects beyond the resonator, the other passes into a groove and round a tuning peg that traverses the stem just below the head. Bridge missing; a long and stout bamboo bow with rattan string. Total length 78 cm; diameter of resonator 11.5 cm.

Catalogue No. 974. Brooke Low collection.

*d.* (2nd specimen from right). Stem straight, flattened, of hard brown wood; it transfixes the resonator but does not project much beyond; the head is enlarged, its front edge is notched and carved. The resonator is made from a section of bamboo, cut just above and just below a node; the septum of the bamboo is perforated with a star-shaped hole; the top of the resonator is covered with a diaphragm of skin lashed on with rattan (Plate VII, fig. 1); the plaited band of rattan (*c.*) encircles the resonator at the zone of the leaf-scars. The single rattan string is at one end looped over the stem in the usual manner, at the other end is lashed round the lower end of the head, passing through a hole in the front border; there is no tuning peg. There is a wooden bridge shaped like an inverted V, resting on the diaphragm of the resonator and a grass bracing string. The bow is of rattan with a string made from a strand of the stem of the bracken, *Pteris aquilina*. Total length 59.7 cm.; diameter of resonator 6.2 cm.; height of resonator 7 cm.

Catalogue No. 1228. D. J. S. Bailey, Esq. [P]; from the head waters of the Undup River.

*e.* (1st specimen on left). Stem of soft wood, almost square in transverse section; it transfixes and projects beyond the resonator; the head is much enlarged, flattened laterally and bent back at an angle to the rest of the stem; on each side a phyllomorphic pattern (*resam*=*Gleichenia dichotoma*) is carved in deep relief. The resonator is half a cocoanut shell, one of the "eyes" at the bottom has been perforated; the mouth is covered with a diaphragm of monkey skin with the hair still on fastened with rattan lashings in the usual manner (Plate VII, fig. 1) The single rattan string at one end passes through a hole pierced in the part of the stem that projects beyond the resonator

and is prevented from slipping through by a knot; the other end is attached to the tuning peg; this transfixes the head just above the angle, and in order to expose a length of peg round which to wind the string a deep short longitudinal groove is cut in the anterior face of the head, into this the string runs, is wound round the peg, passes out through the peg hole and is knotted to the peg outside the groove (Plate VII, fig. 4). A wooden inverted V-shaped bridge is set on the diaphragm and a small slip of wood is thrust under the string just before it enters the tuning-peg groove. There is a bracing string of grass. The bow is of bamboo with a grass string. Total length 83.5 cm; diam. of resonator 12.5 cm.

Catalogue No. 1229. D. J. S. Bailey, Esq. [P. ii. 03].

Except that there is only one string this instrument might be called an *engkerbap*, the shape and carving of the head of the stem being very characteristic of that instrument. From the Undup River.

2. Land-Dyak—*Sigittuad* or *Sigitot*. (Plate VII, fig. 7.)

Stem a length of bamboo (*tongon*). Resonator a hollowed-out coconut shell with the top third cut off, it is transfixed by a piece of wood (*benoah*) which then passes a short way up the cavity of the bamboo stem; in the bottom of the coconut shell is pierced a quincunx of holes; the top is covered by a circular sheet of sago-palm leaf, which is not secured in any way. There is one tuning peg (*thān*) which transfixes the stem back to front not from side to side as in the *enserunai*. The single string (*oöi*) which is the adventitious root of some epiphytic plant is knotted at one end of the piece of wood transfixing the resonator, at the other it is wound round the tuning peg. A triangular block of wood (*tikyer*) stands on the diaphragm and serves to bridge up the string. There is a small bow of bamboo with a string made from a strand of the stem of the common bracken, *Pteris aquilina*. Total length 62 cm. From the village of Krokong, Upper Sarawak.

Catalogue No. 1277. E. W. Byrde, Esq. [P. vij. 03]

The instrument is of very simple construction, in fact it was made in about half-an-hour, the taut string serves to keep every thing together, if this is slackened the diaphragm slips off

the resonator and the resonator itself becomes detached fr the bamboo stem. The Krokongs occasionally make m finished fiddles than the one described above, but there are specimens of such in the Sarawak Museum nor have I ever s one; in some instances the head of a *sigittuad* stem may carved to resemble a hornbill's head.

3. Sea-Dyak—*Engkerbap.*

Stem straight of a soft wood, transfixing resonator a projecting slightly beyond; the resonator is half a coconut sh with a diaphragm of lizard (*Varanus salvator*) skin, secured rattan lashings and wedges in the usual manner. The head the stem resembles that in the *enserunai* No. 1229; the patte has been painted red, blue, green and yellow. The two strin of split rattan are at one end tied to that portion of the st which projects beyond the resonator, at the other they p round two tuning pegs which are fitted as in the *enserunai* N 1229. (Plate VII, fig. 4) The bow (*pengayat*) is of rattan wi a grass string. Total length 97 cm. From the Batang Lup Catalogue No. 1342. D. J. S. Bailey, Esq. [P. 29. ix, 0

*B. GUITARS.*

1. Kyan—*Sapeh* (Pl. II, fig. 4.)

Two-stringed guitar strummed with the fingers. A lar heavy instrument cut out of a block of *tapang* wood. T resonator has been hollowed out at the back to a depth of fro 7 cm. to 10 cm.; the cavity is not closed by a diaphragm. T face of the resonator is somewhat convex; it is decorated wi seven white discs formed of ground *Trochus* shells and at t base with an incised geometrical design typically Kayan character arranged on either side of a pointed ridge. The ste is straight, thickening to the head which is carved to represe the head of a dragon (*asu*); a shell disc is let into the top the dragon's head. There are two tuning pegs, one end these is roughly shaped, the other is split to receive the strin which pass through holes in the stem (Plate VII, fig. 5) an so into the split ends of the pegs. The strings are of ratta

at their lower ends they pass through holes in the face of the resonator and are knotted to prevent slipping through. Bridge lost.

Total length, 12·5 cm.; length of stem, 46·8 cm.; greatest breadth of resonator, 28·8 cm.; breadth of resonator at the bottom 19 cm.; greatest depth of resonator 14·3 cm.

Catalogue No. 52. Brooke Low collection.

A diminutive model of a very similar instrument is hung on the wall of a model of a Kajaman house (Belaga, Rejang R.) recently presented to the Sarawak Musuem. Ling Roth, (l. c. Vol. II, p. 261) figures a similar instrument in the British Museum. This however was made by the Long Wai, who dwell on the Mahakkam River, they are grouped by Dr. C. Hose amongst the Kayans; the Long Wai name for this instrument is *impai*.

2. Dusun.—Two stringed guitar (? native name) (Pl. VII, fig. 6).

This is carved from a block of soft white wood. The stem is long, square in section about its middle, expanding at its junction with the resonator and at the head which is carved and moulded; on its front face five little blocks of wood are pegged on (3-3½ cm. apart), apparently to mark the fingering of the strings. The resonator which is somewhat boat-shaped is hollowed out from the back and the cavity is closed by a sheet of sago-palm leaf laced on with rattan stitchings to the wood. Both the front and the back of the resonator are perforated in their centres by two triangular holes, the apices of the triangles being conjoined. Part of the resonator is not hollowed but is produced distally as a solid piece, curved slightly upwards. A shaped ridge of wood terminating proximally in a square block is left on the face of the resonator; the two brass-wire strings are looped through holes in the ridge, pass through the square block up to the lower end of the head which they pierce and then are wound round two tuning pegs.

Total length 119·5 cm.; length of stem, 67 cm.

Catalogue No. 1274. Collected by the late Dr. A. Dennys Acquired by exchange from the Raffles Museum, Singapore.

A somewhat similar specimen is figured by Whitehead in " Exploration of Mount Kina Balu," (1893) p. 108.

3. Maloh and Sea-Dyak—*Blikan*.

*a*. Maloh—*Blikan* (Plate II, fig. 3). Two-stringed guitar cut from a block of soft white wood. The resonator is hollowed out from the front and the cavity is closed by a tightly-fitting wooden lid, securely pegged on; this lid is decorated with a geometrical design painted in indigo. The end of the resonator is produced and solid, it has been whittled and fretted to form a scroll. Four triangular holes, their apices conjoined are cut in the lid of the resonator and a block of wood is left attached to the lid just distad of the four holes. The stem is quite straight, somewhat triangular in section, it is very deep from front to back in its lower (distal) portion where it joins the resonator and the back of it here is scrolled and decorated with lines of black dammar; three chevrons of dammar are painted across the back of the stem higher up. The proximal end is expanded into a head carved to represent the head of a hornbill (*Buceros rhinoceros*) with a seed in its mouth, the neck is stained black. Two tuning pegs transfix the stem below the head. The two rattan strings distally are fastened to two little wooden spikes stuck into the wooden block on the lid of the resonator; proximally they pass through holes in the stem just over the tuning pegs, out through the tuning-peg-holes and are gripped in the split-ends of these pegs (Plate VII, fig. 5). Total length 89.8 cm.; length of stem 52 cm.; breadth of resonator 15.5 cm.

Catalogue No. 54. Brooke Low collection. Brooke Low (quoted by Ling Roth l. c. Vol. II, p. 262), describes a *blikan* in use amongst Saribas and Kalaka Sea-Dyaks; in this, the head

* The Malohs whose headquarters appear to be the Kapuas river, Dutch Borneo, are an unsettled wandering people who frequently come over into Sarawak for trading purposes. Dr. A. C. Haddon, F.R.S., who measured 7 individuals finds that these had an average cephalic index of 76·2; he does not group them in any of the five classes into which he divides the natives of Sarawak, but it is likely that they fall into the Kenyah-Kayan division (cf. A sketch of the Ethnography of Sarawak, Haddon, Archivio per l'Antropologia et l'Etnologia, Vol. XXXI, 1901).

of the stem is actually formed from the bill of a hornbill glued on to the stem, and is not a carved representation of a hornbill's head as in the Maloh specimen described above.

Hose and McDougall, in a paper—"The Relations between Men and Animals in Sarawak" (Journ. Anthrop. Institute. Vol. XXXI, 1901. p. 198) write:—"The hornbill must be included among the sacred birds of the Iban (i.e. Sea-Dyaks), although it does not give omens. On the occasion of making peace between hostile tribes, the Ibans sometimes make a large wooden image of the hornbill and hang great numbers of cigarettes on it, and these are taken from it during the ceremony and smoked by all the men taking part in it." Smaller figures of the hornbill (*Penchallong—Buceros rhinoceros*) are suspended in Sea-Dyak houses during harvest feasts and food is either put into the mouths of the figures or else hung beneath them, (cf. Ling-Roth l. c. Vol. I, p. 256). There are several examples of these *Penchallong* in the Sarawak Museum; the birds are invariably represented as holding one or more seeds in their beaks. Amongst the Kenyahs the hornbill *Anorrhinus comatus* gives omens of minor importance. It is not surprising that so important a bird should figure in the decorative art of the Borneans.

*b.* Sea-Dyak—*Blikan*. Very similar to the preceding specimen, but roughly made and undecorated with carving or paint. The shape of the head suggests that it was intended eventually to carve it into a representation of a hornbill's head.

Total length, 79 cm. Length of stem, 52 cm.

Catalogue No. 1341. D. J. S. Bailey, Esq. [P. 25, viij. 03]. From the Batang Lupar.

It is highly probable that the Sea-Dyaks borrowed this instrument and its name from the Malohs; some of them at any rate assert so much.

5. Malay—*Gambus*, six-stringed mandolin, (Plate II, fig. 5).

The instrument is cut out from a block of *mirabou* (*Afzelia bijuga*) wood and is shaped like the European mandolin, i.e. the stem passes insensibly into the resonator and the shape of the instrument is that of a pear longitudinally bisected. Both the stem and the resonator are hollowed out from the front; the

cavity of the stem is closed by a piece of wood nailed on, the cavity of the resonator by a diaphragm of skin, edged with blue cloth and nailed to the sides with brass-headed nails. The back of the resonator is perforated with a circular hole and the cover of the stem near its junction with the resonator is similarly perforated. This orifice is surrounded by incised lines forming a conventional flower design. A rectangalar block of wood is driven into the lower (distal) end of the resonator and through holes in this the strings pass to be attached to a cross bar of wood at its back. The stem is expanded proximally to form a curved head, the cavity of the stem is continued up into the lower part of the head, but not only is not closed in front, but the back of the head is here cut away leaving the two sides only, these are perforated with six holes for the tuning pegs; the rest of the head is solid and its sides are decorated with a phyllomorphic pattern in deep relief, in front with a phyllomorphic design in shallow relief and three brass headed nails. There are six tuning pegs (*petaran*) and six cotton strings. An inverted V shaped bridge rests on the diaphragm.

Total length 93 cm.; greatest breadth of resonator 16·9 cm. Catalogue No. 1207. [Pd. xii. 02.] It appears probable that this instrument has been borrowed from the Arabs. There is a similar specimen in the Cambridge Anthropological Museum obtained by W. W. Skeat, Esq., in the Malay Peninsula.

### Class III.—Upright Harps.

(Plate II, fig. 6.)

These instruments, which appear to be used only by Muruts Dusuns (?) and Sea-Dyaks are roughly rectangular boxes (resonators) with a handle and an upright or a handle aloue at each end. Strings are stretched in a vertical plane from one handle or upright to the other and are kept taut by upright bridges standing on the lid of the box; the addition of tuning pegs seems to be a modern development. The Murut harp is simpler in construction than the Sea-Dyak forms and its strings being looped through the handles, not tied separately as in the Sea-Dyak harps are in two parallel vertical planes instead of in one. The strings are strummed with the fingers of one hand

whilst the lid of the resonator is tapped with the fingers of the other.

I am inclined to believe that the Sea-Dyak *engkratong* at any rate is derived from a stringed instrument like the *enserunai* through a guitar stage. In my private collection is a roughly made Sea-Dyak six-stringed guitar very like the Dusun guitar in shape but with a much longer projection distad of the resonator and this instrument is known to Sea-Dyaks as an *engkratong*. If the stem of this guitar was shortened to correspond in length with the distal projection and if the string were stretched between two uprights in a vertical plane the instrument would become an *engkratong*. It is at least curious that the guitar in this form should be known to the Sea-Dyaks only under the name of *engkratong*, and that it should have disappeared almost entirely from use.

Ling Roth (l.c. Vol. II, p. 260), figures a zither from S. E. Borneo in the collection of the Leyden Museum. It is a flat board with eight strings stretched across it and bridged up with a cylindrical piece of wood at each end; there is no information as to the tribe from whom the instrument was obtained. I do not consider that the instrument is connected in any way with the *engkratong*, and have doubts as to the correctness of the locality quoted.

1. Murut—Upright Harp. (Plate II, fig. 6, upper specimen).

A long narrow wooden box, truncate at one end, at the other tapering and produced into a handle; it is cut out of one piece of wood and hollowed out from the bottom, the cavity being closed by a wooden cover pegged on with wooden pegs. The handle is a flattened oval. Two loops of rattan (making four strings) pass through two holes in the handle to the opposite end of the instrument, where they perforate a projection from the wall of the box and are knotted to prevent slipping. The four strings are raised clear from the resonator by two upright bridges set in holes in its roof; the bridges have two notches on each side to receive the strings. The strings were originally of *bemban* (*Donax sp.*) but having been destroyed by insects, are replaced by rattan.

Total length, 117·6 cm.; greatest breadth, 7 cm.; depth, 6 cm. Catalogue No. 732. Dr. G. D. Haviland coll. From the head waters of the Tengoa River., British N. Borneo.

2. Sea Dyak.—*Engkratong.*

*a.*—A wooden box roughly rectangular in shape, the lower sides rounded, a projection at each end, all cut out of one block; the cavity is hollowed out from the top and closed by a tightly fitted lid of wood securely pegged down; the lid is perforated with a triangular hole in the centre, into the terminal projections are set two large flattened handles, carved and fitted into a phyllomorphic design. A slender wooden upright is stuck into each projection just where it issues from the resonator. Four separate rattan strings pass from one upright to the other, to one they are knotted by slip-knots, to the other by double hitches. Two wooden upright bridges stand on the lid of the resonator, they are notched on one side only to receive the strings.

Total length 106 cm.; resonator 41 cm. × 16·9 cm. × 10·1 cm.

Catalogue No. 53. Brooke Low collection.

This specimen has been figured by Ling Roth (l.c. Vol. II, p. 261); on the same page Ling-Roth also figures another specimen, one handle of which is a fowl's head, the other its tail, and describes this as being in the Brooke Low collection; I have been unable to find any trace of this particular instrument in the Sarawak Museum.

(Plate II, fig. 6, lower specimen).

*b.*—A rectangular wooden box with a handle at each end, all cut from one block; the box is hollowed from the top and the cavity is closed by a wooden lid nailed on; the lid is perforated with a circular hole in the centre; the handles are scrolled. Into each handle is set a stout wooden upright quadrangular in section, their tops are expanded and shaped to a leaf form, one in addition has one side carved in relief. Five rattan strings pass through holes in one upright to tuning pegs in the other, over notches in an upright bridge. Resonator, 58 cm.—15·6 cm.—14 cm.; height of upright, 29·3 cm.

Catalogue No. 1258. D. J. S. Bailey Esq., [P. xii . 02.]

## Class IV.—Cylindrical Harps.

(Plate III, fig. 7. Plate VI fig. 14).

These are made from a joint of a large species of bamboo; the strings, four to twelve in number, are cut out from the bamboo but are left attached at their ends and are tightened with slips of wood thrust under them. The septa of the bamboo joint are generally perforated and to increase the resonance of the instrument a longitudinal slit or a hole is cut in it. This class of instrument is in use amongst the Kyans, the Kenyahs, the Long Kiputs, the Kadyans, the Dusuns, and the Land-Dyaks. The method of performing on this instrument amongst the Land-Dyaks of the Sadong River is as follows:—

The performer sits on the ground, rests one end of the instrument against the side of his right foot and the back of it against his left thigh; the strings are struck with a short stick held in the right hand and with the left hand the player alternately opens and closes the upper and open end of the instrument; the strings can be tuned by altering the position of the bridges. Several men usually perform together and a sound like distant gongs can be produced by experts; other men accompany with the *lalipok* and *pelonchong*; the former is a portion of bamboo joint shaved down so that the wall is quite thin, one end is open and is struck against some hard substance; the latter is a piece of bamboo joint with a hole cut in the side and it is struck with a stick (Plate VI fig. 14). The Krokong Land-Dyaks still play on these harps at their festivals, the Sadong Land-Dyaks only occasionally play on them and then not seriously, whilst at Quop these instruments are merely toys made and played on by children.

1. Dusun—*Tangkungang*. (Plate III, fig. 7, left hand specimen).

Made from a single joint of bamboo which is cut off flush with the septa so that nothing projects at either end; both the septa are perforated. There were originally five strings arranged more or less equidistantly round the instrument; all but two of the strings broken. Total length 51·4 cm.; diameter, 10·5

cm.; distance between the strings, (measured along the curve of the bamboo) about 6·5 cm.

Catalogue No. 775. Drs G. D. and H. A. Haviland coll. [P. v. 92]. From Kiou, Mt. Kina Balu. The equidistant strings and the absence of projections beyond the septa show the primitive nature of the instrument; it is roughly made and is devoid of ornamentation. I have no information as to the method of performing on this instrument, but I imagine that it is held upright between the feet and that the strings are twanged with the fingers of both hands.

In the Raffles Museum, Singapore are two cylindrical harps purchased from the late Dr. Dennys and said to be Dusun. These are much more complicated in structure than those in the Sarawak Museum example. Both have twelve strings. In one these are arranged in groups of three, four and five, in the other in a group of seven, with the other five strings round the remaining periphery; in both, the bamboo projects considerably beyond the septa and the upper tubular projection so formed is deeply notched; one of the instruments has two longitudinal slits to increase its resonance.

2. Kanowit—Cylindrical Harp. (Plate III, fig. 7, right hand specimen).

At one end (the lower) the bamboo is cut off almost flush with the septum, at the other end (the upper) the bamboo projects 4·5 cm. beyond the septum and at one part still further, 11·6 cm., to form a shaped handle 7 cm. long. Round the top of the instrument runs a band of geometric pattern, roughly carved in low relief, the background stained with dragon's blood. There are only four strings arranged in pairs one on each side of a longitudinal slit in the body of the harp; this slit, which is enlarged at each end in the manner shown in the figure is on the same aspect (the front) of the harp as the handle. A band of plaited rattan encircles the harpat the levels of attachment of the strings to prevent them splitting off. The septa are not perforated. Length (exclusive of the handle) 63 cm.; diameter 11·8 cm.; distance between one pair of strings and the other, measured along the curve of the instrument in front, 11 cm.; measured along the curve at the back 13·5 cm.

Catalogue No. 563. Brooke Low collection. From the Kanowit River.

This instrument could be laid on its back and whilst the handle was grasped with one hand, the strings could be strummed with the fingers of the other, but I have no information as to how the Kanowits actually perform on the harp.

3. Long Kiput*—*Pagang* or *Kantom* (Plate III, fig. 7, middle specimen).

The bamboo projects 9 cm. beyond the septa and is there shaved down so as to be quite thin; on these shaved down portions are carved bands of simple design, such as rows of triangles, rows of dots, rows of oblique bars, the background is whitened with chalk or else the pattern itself is chalked and the background is blackened with indigo or soot. The septa are not perforated. There are six strings arranged in groups of three, one on each side of a middle line. A rattan plait encircles the harp at the level of attachment of the strings to prevent them splitting off. Down the front of the instrument run two short longitudinal slits, end to end; at the upper end of one slit and at the lower end of the other are three incised circles, between the two a group of five incised circles; the cuticle of the bamboo immediately bordering the slits is stripped off and on these areas is carved in relief in one case a chevron pattern in the other a dog's tooth pattern, the background is black and the relief chalked. Total length 77·5 cm.; diameter, 9·1 cm.

Catalogue No. 1069. R. S. Douglas Esq. [P. v. 00.] From the Baram River.

A Long Kiput harp is figured in Ling Roth's work (l.c. Vol. II, p. 262); it is from Dr. C. Hose's collection and is called a *Satong*.

4. Land-Dyak (Menggrat sub-tribe)—*Ton-Ton*. (Plate VI fig. 14).

*a*. Made from a joint of bamboo; the bamboo is not cut flush with its septa, but at either end projects considerably; one septum is broken through. Three strings or rather three broad

* This tribe is placed by Dr. A. C. Haddon, (l.c.) in his group of Kalamantans.

strips (1 cm.) are cut out from the body of the instrument on one side but are left attached at each end and are prevented from stripping off by bindings of rattan. The central strip is bridged up with a block of wood in the middle and emits a high note; the side strips are bridged up at their ends and give a much lower note; under each side strip a diamond shaped hole is cut in the body of the instrument. A short stick for striking the strings is attached by string to the harp. Length 69 cm.; diam. 7.8 cm.

Catalogue No. 1295. [Pd. viij. 03.] From Piching. Upper Sadong.

*b.* A specimen entirely similar to the preceding. Length 67 cm.; diam. 9 cm.

Catalogue No. 1296. [Pd. viij. 03.]

## *WIND INSTRUMENTS.*

The wind instruments used by the tribes of Borneo may be grouped as follows* :—

*A.—Without special vibratory apparatus.*

I. Shell-trumpet.

* In any wind instrument sound is produced by causing the column of air contained in it to vibrate, and the instruments have been classified according to the means employed to produce this vibration. An outline of such a classification will help to elucidate that which I have adopted for the wind instruments of the Bornean peoples.

1. Trumpets—in these air is driven forcibly into the instrument through the almost closed lips of the player, the lips vibrating act as a partial valve and the air enters the instrument in a pulsatory manner.

2. Flutes, pan-pipes, flageolets, whistles, etc. In instruments of this class a jet of air is directed against the edge of the sound hole (technically known as the "voice") and so is cut in two, causing an interference which sets the air in the instrument vibrating and produces a musical note.

*a.* Transverse flutes—in which a jet of air is directed by the lips against the edge of the "voice."

*b.* End-flutes, pan-pipes—in which the jet of air is directed by the lips across the open end of a tube so as to impinge against the edge.

II. Transverse flutes.*
III. Nose flutes.
IV. Flageolets and bird-calls with a directive duct built up outside the instrument.
V. Flageolets and whistles with a directive duct formed inside the instrument.

*B. With special vibratory apparatus.*

VI. Pipes with single "beating" reed (clarionet type).
VII. Mouth organs with single "free" reed (harmonium type).

## Class I.—Shell-Trumpet.

Some Brunei Malays recently informed me that a trumpet, made by merely knocking off the top whorl of the large helmet-shell—*Cassis tuberosum*—, is used by them for calling their buffaloes together; their name for the trumpet was "*buyong*." I can hear of no other people in Borneo who employ a similar instrument.

## Class II.—Transverse Flutes.

I know of only one example of this type of wind-instrument, the *suliang san* of the Sea-Dyaks; it is more difficult to play than

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*c.* Whistles—in which the jet of air is directed against the edge of the "voice" through a duct built on the outside of the tube.
*d.* Flageolets, whistles, etc. (flute à bec group) in which the jet of air is directed against the edge of the "voice" through a duct formed inside the tube.

3. Reed instruments.
*a.* Clarionet, recorder, etc, with single vibrating reed ("beating reed.")
*b.* Accordion, harmonium, etc.—with single reed vibrating equally on either side of a frame ("free reed.")
*c.* Oboe, bassoon, etc.—with double valve both sides of which are flexible ("oboe reed.")

(There are of course many variants of these main types.)

* Classes II—VI are all bamboo instruments.

the nose flute or than any of the flageolets and this probably accounts for its sparse distribution.

1. Sea-Dyak—*Sulieng san* (Plate VIII fig 1.)

Made of bamboo, one end (the distal)* open and slightly obliquely truncate; the natural septum closes the other end; the bamboo has not been cut flush with this but projects considerably beyond it. The sound-hole is a long quadrangular slit cut close to the node of the bamboo. There are four open stops all on the same side and about 3 centim. apart. Total length, 83.3 cm.; diameter, 2.5 cm.

Catalogue No. 62. Brooke Low collection.

None of the Bornean tribes adopt any standard of measurement when boring stopes in their flutes, but bore them at the distances apart the most convenient to the maker.

## Class III.—Nose-Flutes.

(Plate III fig. 8 and Plate VIII fig. 2.)

These are employed by Dusuns, Kanowits, Tanjongs, Kayans, Kenyahs and allied tribes, Sea-Dyaks and Land Dyaks.

A photograph of a Tanjong playing on a nose flute is given in Beccari's "Nelle foreste di Borneo" (1902) p. 424; the performer is seated cross-legged on the ground and holds the long bamboo flute across his body from right to left and almost at arm's length, the left nostril is applied to the proximal end of the instrument and directs a jet of air against the edge of the hole pierced in the natural septum of the bamboo.

Air is driven through only one nostril, the other is plugged with cloth or tobacco or moss (cf. Ling-Roth l. c. vol. II, p. 258). These instruments are generally long and are made from a single joint of bamboo, the distal end is open and the proximal end is closed by the natural septum which is perforated by an irregularly shaped hole; the leaf-scars and the wall of the bamboo immediately adjacent to the septum are shaved and smoothed down. Fig 2 Plate VIII is a representation of the proximal end of a nose-flute. The number of stopes varies.

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*I term the end near or at which the sound hole is situated the *proximal* end; the opposite end, the *distal* end.

1. Dusun—*Turali.*

Made from a long joint of bamboo, the distal end is open and cut square, the proximal end is closed by the natural septum and the surrounding leaf-scars have been shaved off. The flute has been stained black with indigo. An irregular hole in the septum. There are four open stops, one on the underside for the thumb 34 cm. distant from the proximal end, three on the opposite side 5·5 cm. apart, bored in a flattened strip formed by removing the cuticle of the bamboo.

Length 70 cm.; diam. 2·2 cm. Catalogue No. 776.

2. Kanowit—*Sangoi* (Plate III, fig. 8, right hand specimen).

Of large size, the proximal end closed by the natural septum of the bamboo which is perforated with a single irregular orifice. There are four open stops, one on the underside for the thumb of the right hand, distant 55·2 centim. from the proximal end of the flute, and three on the upperside, 4–4·5 centim. apart for the first or second fingers of the right hand and the first and second or second and third of the left hand.

The flute has been stained red with dragon's blood. At a distance of 12 centim. and extending to a distance of 51 centim. from the proximal end is a design made up of four black bands spirally twisting round the instrument, this is followed by two circular black bands and six dog's-tooth pattern bands, which are succeeded by a repetition of the spiral design 72·8 centim. distant from the proximal end and 21·5 centim. in length; there is a terminal dog's-tooth design, beyond which the bamboo is fretted, eight diamond-shaped apertures being formed, the rim of the bamboo is notched, between the notched rim and the frets is a very rough dog's-tooth pattern. These patterns are painted on the bamboo with indigo though in parts it is partly in low relief as if the artist had first sketched out the patterns with a knife. A small tassel of variously coloured beads depends from the distal end of the flute.

Total length 107·3 cm.; diam. 3 cm.

Catalogue No. 60. Brooke Low collection.

Ling-Roth (l. c. p. 258) figures a Kenyah nose-flute (*Silingut*) in the collection of Dr. C. Hose.

3. Sea-Dyak—*Sulieng idong* (Plate III, fig. 8).

All these are of much less diameter than Tanjong, Kanowit, and Kenyah examples.

*a.* Third specimen from right.

The proximal end is closed in the usual manner, the distal end is closed by the septum of the joint and the bamboo projects beyond this; a large oval hole is cut in the flute just proximad of the distal septum, so that the flute has one end practically open. There is a stop on the under-side 51 centim. from the proximal end and three stops on the opposite side 4·5–5 centim. apart. The stops have been bored with a red-hot iron. Total length 98·5 cm.; diam. 2·7 cm.

Catalogue No. 558. Brooke Low collection.

*b.* Middle specimen.

Of similar construction to the preceding specimen, but the distal end quite open and cut obliquely. One stop on the under-side 46 centim. from the proximal end, three stops on the opposite side, about 5 centim. apart. Nine red bands formed by removing a strip of the cuticle of the bamboo and staining the exposed surfaces with dragon's blood—encircle the instrument; the stops are situated in four of these bands, three are proximad of the stops, two distad, the last being terminal; the bands are about 1·5 centim. broad. Total length 83 cm.; diam. 3 cm.

Catalogue No. 559. Brooke Low collection.

*c.* Similar to 559 but not decorated. The note-hole on the under-side is 51 centim. from the proximal end, the three stops on the opposite side are 3–3·5 centim. apart. Total length 75 cm.; diam. 2·5 cm. Badly damaged by beetle.

Catalogue No. 560. Brooke Low collection.

*d.* (Fifth specimen from the right).

Of the usual construction: the hole perforating the septum is regular, the distal end is cut square except for a triangular projection. The stop on the under-side is 40 centim. from the proximal end, the three on the opposite side are about 5,

centim. apart. Four pairs of incised lines run round the flute, a stop being situated between each pair; it was evidently the intention of the maker to decorate the flute like No. 559. Total length 75 cm.; diam. 2·3 cm.

Catalogue No. 561. Brooke Low collection.

*c.* (Fourth specimen from the right).

Of the usual construction, the distal end obliquely truncate and the edges curved. The stop on the under-side is 35·5 centim. from the proximal end, the other three are about 5·5 centim. apart. The whole instrument, with the exception of a band at each end, has been scraped down and stained with dragon's blood, a dog's-tooth pattern has been cut in the proximal unstained band. Total length 70 cm.; diam. 2·7 cm.

Catalogue No. 562. Brooke Low collection.

## CLASS IV.

Flageolets and Bird-Calls. With a directive duct built up on the outside of the instrument. (Plate III, fig. 8, and Plate VIII, figs. 3–10).

*a.* FLAGEOLETS.

This class of flageolet or whistle is in use amongst the Sea-Dyaks, the Land-Dyaks, the Muruts, and possibly some other tribes. There are four distinct ways in which the directive duct is formed :—

*A.*—A curved slip of bamboo is tied on to the flageolet with string or rattan, it occupies the space between the proximal end of the instrument (which may be open or closed by the natural septum) and the sound-hole (Plate VIII fig. 3).

*B.*—The bamboo is not cut perfectly flush with the septum but projects *slightly* proximad of it; the portion of the instrument between the proximal end and the sound-hole is shaved down and one side is cut flat, over this shaved-down portion a ring of bamboo is fitted. (Plate VIII figs. 4 and 5).

*C.*—Similar to the preceding except that a loop of rattan is fastened round the shaved-down portion (Plate VIII fig. 6).

*D.*—The bamboo is not cut flush with the septum but projects *considerably* proximad of it, in this projecting "tube" a hole is bored, a gutter runs from it to the sound-hole, and is roofed over with a slip of bamboo luted on with resin (Plate VIII figs 7 and 8).

*A.*

1. Sea Dyak—*Sulieng nyawa.*

(Plate III fig. 8. 5th specimen from left and Plate VIII fig. 3).

Flageolet of bamboo the proximal end cut square and open the distal end obliquely truncate with a projection and the edges notched. The sound-hole is 1·7 centim from the proximal end; just proximad of the sound hole a slip of bamboo naturally curved, is lashed with cotton to the instrument and projects slightly beyond its proximal end. There are four stops the uppermost is 12·2 centim. distant from the sound-hole, they are about 3 centim. apart from each other. The flageolet is covered with phyllomorphic patterns carved in low relief, the background being stained with dragon's blood. Total length 30·5 cm.

Catalogue No. 1113 [Pd. xii. 03.]

2. Land-Dyak (Bukar sub-tribe)—*Banchi.*

Flageolet of bamboo. The distal end is open, the proximal end is closed by the natural septum and the bamboo is cut flush with this. The directive duct is formed by shaving flat a strip between the sound-hole and the proximal end and tying over this with a piece of bark a slip of bamboo naturally curved. There are three stops situated on the opposite side to the sound-hole, they have been bored with a red hot iron in a flattened strip formed by removing part of the wall of the bamboo, they are 3.5 centim. apart. Total length 33·5 cm. diam. 2 cm.

Catalogue No. 1293 [Pd. viii. 03.]

From Lanchang, Upper Sadong district.

This flageolet is played with the sound-hole downwards; the Sea-Dyaks always bore the stops on the same side as

the sound-hole which is therefore directed upwards when the flageolet is played.

*B.*

3. Land-Dyak (Krokong sub-tribe)—*Telarli.* (Plate VIII fig. 4 and 5.)

*a.* Distal end open and obliquely truncate, proximal end closed by the natural septum, the bamboo not projecting much beyond it. The wall of the bamboo distad of the septum is obliquely sliced on one side and in the exposed surface the sound-hole is bored; between the sound-hole and the proximal ends the wall of the bamboo is shaved down and one side (that corresponding with the sound-hole) is cut flat; over this portion of the flageolet a ring of bamboo (*bak*) is fitted. On the side opposite the sound-hole are five stops bored with a red-hot iron in a flattened strip formed by cutting away the cuticle of the bamboo; the distances between the stops range from 2·3 centim to 3·7 centim., the uppermost is 19 centim. from the sound-hole. This form of flageolet is known as *laki*, i. e. male, it is played in the same way as the *banchi*, with the sound-hole downwards. Total length 43 cm.

Catalogue No. 1280. E. W. Byrde Esq. [P. vii. 03.]

From Krokong village, Sarawak River.

*b.* Much the same as the preceding but the distal end is not obliquely truncate; there are only two stops and these are on the same side as the sound-hole, they are 4·5 centim. apart and the upper one is 25·5 centim from the sound-hole. This form is known as *puan*, i. e. female. Total length 46 cm.

Catalogue No. 1281. E. W. Byrde, Esq. [P. vii. 03.]

From Krokong village; Sarawak river.

— *ageolet.*

Distal end open and cut square, proximal end closed by the natural septum and the bamboo cut flush with it; the sound-hole is bored 4·5 centim. from the proximal end and the intervening portion of the bamboo wall is shaved down and one side is

flattened, over this is fitted a ring of bamboo. There are two stops bored in a flattened strip on the same side as the sound-hole. They are 5·5 centim. apart, the upper one is 44·5 centim. from the sound-hole. The flute is decorated with an incised phyllomorphic design roughly executed. Total length 64·5 cm.; diam 1·7 cm.

Catalogue No. 1292. F. J. D. Cox, Esq. [P. viii. 03.]
From the Trusan river.

5. Sea-Dyak—*Sulieng nyawa.*

(Plate III fig. 8, second specimen from the left).

Distal end open and cut square, proximal end closed by the natural septum, the bamboo projecting slightly beyond it. The sound-hole is bored just distad of the septum and the bamboo wall between it and the proximal end is shaved down in the usual manner; the bamboo ring that fits over this portion has been lost. There are three note-holes about 3 centim. apart from each other, the uppermost being 25 centim. from the sound-hole. Total length 41·3 cm.; diam. 2 cm.

Catalogue No. 64. Brooke Low collection.

It is quite possible to play on this flageolet and the three preceding ones even if the bamboo ring is removed, the upper or lower lip in that case helping to form the directive duct; it is therefore just possible that the Sea-Dyak flageolet never was furnished with a bamboo ring but I think that this is unlikely and at any rate the Sea-Dyak specimen falls naturally into position with the Murut and Land-Dyak ones.

*C.*

6. Land-Dyak—*Kroto* (Plate. VIII fig. 6.)

Distal end open and slightly obliquely truncate, proximal end closed by the natural septum, the bamboo projects slightly beyond this; slightly distad of the septum the bamboo is obliquely sliced and in the exposed surface the sound-hole is bored with a hot iron; between the sound-hole and the proximal end the bamboo wall is shaved down and has one side flattened in the

usual way. Instead of a bamboo ring fitted over this portion a strip of split rattan is wound round it, knotted once, then carried down the back of the instrument and tied round it six times in the manner shown in the drawing. There are five stops on the opposite side to the sound-hole bored with a red-hot iron in a strip flattened by stripping off the cuticle of the bamboo. They are 2·5 centim. apart. Total length 39 cm.

Catalogue No. 1282. E. W. Byrde, Esq. (Pd. vii. 03).

From Sambas, Dutch Borneo.

*D.*

*a.* Murut—Flageolet. (Plate VIII figs. 7 and 8.)

Distal end open and cut square, proximal end closed by the natural septum, the bamboo has not been cut flush with this but projects considerably beyond it; in the wall of this projecting part a small hole is bored quite close to the septum, and a groove runs on the outside of the flute from this hole to the sound-hole, the groove being covered by a slip of bamboo luted on with dammar. The edge of the sound-hole is sharpened by a piece of palm-leaf stuck on to it. The sound-hole is 5 centim. from the proximal end; there are two stops 8·5 centim. apart bored with a red-hot iron in a flattened strip on the same side as the sound-hole, the upper one is 32 centim. from the sound-hole. Total length 52·5 cm.; diam. 2·5 cm.

Catalogue No. 1291. F. J. D. Cox, Esq. (P. viii. 03). From the Trusan river.

*b.* (Plate III fig. 8, second specimen from right).

Very similar to the preceding; there are two lashings of split rattan round the distal end of the instrument to keep it from splitting; the slip of bamboo roofing over the directive groove has been lost. Some rude representatives of animals (? buffaloes) have been scratched with the point of a knife on the wall of the instrument but there is no attempt at a decorative pattern. The two stops are 7·5 centim. apart; the upper is 45 centim. from the sound-hole, which is 7·5 centim. from the proximal end. Length 72 cm.; diam. 3 cm.

Catalogue No. 733. Dr. G. D. Haviland (P. 1890). From the head of the Tengoa valley.

*b.* BIRD-CALLS.

Though these are not musical instruments in the strictest sense of the word they deserve notice here since morphologically at least they are musical instruments. I know of two distinct forms of bird-calls used in Borneo :—

1. Kyan—*Bulo wok.* (Plate VIII fig. 9.)

These are constructed on the same principle as the bamboo flageolets of type D, but they are made of a larger species of bamboo and are much shorter. With these the Kyans imitate the cry of the owl *Ninox scutulata* and the cry of the gibbon *Hylobates mulleri.*

*a.* Distal end open, proximal end closed by the natural septum, the bamboo not cut flush with this but projecting almost as far proximad of it as it does distad ; in this proximal portion a large hole is bored, the very large sound-hole is bored just distad of the septum and leading to it from the other hole on the outside is a wide gutter or groove roofed over with a slip of bamboo luted on with dammar. The instrument is decorated with a characteristic Kyan design carved in low relief. Length 12·7 cm. ; diam. 5·1 cm. ; diam. of sound-hole 2·3 cm.

Catalogue No. 1289. [Acquired by exchange from Dr. C. Hose. ix. 03]. From the Baram river.

*b.* The distal end open, proximal end closed by the natural septum. The bamboo projected considerably proximad of this but nearly all has been cut away leaving only a small flange in which a hole is bored (*see* figure) ; the sound hole and directive duct as in the preceding example. The instrument, which is not ornamented in any way, is illustrated on Plate VIII, fig. 9. Length (including flange) 13·5 cm. ; diam. 4·9 cm.

Catalogue No. 1290. [Acquired by exchange from Dr. C. Hose ix 03]. From the Baram river.

The Sea-Dyaks, Kenyahs, Kadyans and Muruts employ an interesting form of bird-call for attracting within reach pigeons

and ground-doves. It consists of a section of a large species of bamboo, with a sound-hole bored in it and with one end open, the other closed by the septum; to this section of bamboo a long bamboo stem, with the septa broken through so that a long tube is formed, is obliquely attached so that a current of air directed down the tube impinges against the edge of the sound-hole bored in the bamboo section. The hunter conceals himself amongst herbage or in a leafy shelter and scatters some grain around, and then blows his call; if any bird comes within reach it is captured by a noose at the end of a long stick, the noose being generally spread round the mouth of the bird-call; sometimes the birds are limed. The bird-call is, in fact, a wind-instrument with a directive duct (the bamboo tube) attached to it and falls into Class IV in the classification given above. Ling-Roth (l. c. vol. p. 44) gives a good figure of a Murut bird-call and quotes Burbidge's account of its use.

2. Sea-Dyak—*Bumbun*. (Plate VIII fig. 10)

*a*. Bamboo section of 6 cm. diameter and 51 cm. in length with one end closed by the natural septum the wall not cut flush with this but projecting considerably proximad of it, the other end open and very obliquely truncate so that a projecting spout is produced. The sound hole is bored at a distance of 10·5 cm. from the septum on the distal side. The portion of the bamboo projecting proximad of the septum is vertically transfixed by a wooden upright with a large circular hole in it. The bamboo tube is 233·5 cm. long; it passes through the hole in the wooden upright and is lashed to the bamboo section by rattan; its distal end is obliquely truncate and fits the curvature of the bamboo section leaving only a narrow passage through which the current of air passes to impinge against the edge of the sound-hole; the joint is made secure by a luting of dammar.

Catalogue No. 686. Ven. Archdeacon J. Perham [P.]

*b*. A very similar specimen, but the spout-like projection of the bamboo section much more pronounced. A long bamboo rod to which a noose should be attached is tied to the bamboo

stem of the instrument. Length of bamboo section 51 cm, diam. 6 cm. Length of bamboo tube 221.5 cm.

Catalogue No. 1035. J. E. A. Lewis, Esq. [P. ix. 98.]

## CLASS V.

Flageolets and whistles, with a directive duct formed on the inside of the instrument. (Plate III, fig. 8, and Plate VII, fig. 8 and Plate VIII, figs. 11 and 21).

This type of flageolet seems to be in use amongst the Sea-Dyaks only.

1. Sea-Dyak—*Sulieng nyawa.* (Plate III, fig. 8, and Plate VIII, figs. 11 and 12).

*a.* (First specimen on the left). Distal end open and obliquely truncate, proximal end cut square and closed by a disc of wood; the sound-hole is quadrangular and is cut quite close to proximal end; the disc of wood closing the proximal end is narrowly grooved on the side corresponding to the sound-hole. There are four stops, 1·9 centim. apart, the uppermost 18.8 centim. from the sound-hole. Length 37 cm.; diam. 1·8 cm.

Catalogue No. 63. Brooke Low collection.

*b.* (Fourth specimen from the left). Very similar to the preceding; one stopon the opposite side to, and distant from the sound-hole 31·3 centim. three stops on the same side as the sound-hole about3 centim. apart. Length 51·5 cm.; diam. 1·9 cm.

Catalogue No. 65. Brooke Low collection.

*c.* (Third specimen from the left). Very similar to No. 63, but proximal end slightly obliquely cut in a opposite direction to the oblique truncation of the distal end. Four stops 3–3·5 centim. apart, the uppermost 19·2 centim. from the sound-hole. Length 44·6 cm.; diam. 2 cm.

Catalogue No. 66. Brooke Low collection.

*d.* A long slender instrument; proximal end slightly obliquely truncate and closed by a disc of wood grooved as in the preceding specimens. Sound-hole quadrangular, cut close to the proximal end. Three stops about 4 centim. apart, the uppermost 38 centim. from the sound-hole. The instrument is elaborately carved; the distal third is ornamented with bands of phyllomorphic patterns in low relief, the background being stained red with dragon's blood; proximad of this is a zone 10 centim. broad of five bands of phyllomorphic patterns in low relief, the background composed of hatched incised lines (very unusual in Sea-Dyak carving); proximad again of this zone is a zone 12 centim. broad of bands of phyllomorphic patterns which have just been sketched out with the point of a knife and never completed. Lengths 54 cm.; diam. 2 cm.

Catalogue No. 556. Brooke Low collection.

*e.* Somewhat similar to the preceding specimen, but much smaller. Proximal end very obliquely truncated, the opening filled by a plug of wood which has been grooved to form the directive duct; distal end cut square, the wall of the flageolet projects beyond the node but the septum has been broken through. Sound-hole large; there are eight stops, seven on the same side as the sound-hole, one is on the opposite side, they are about 1·5 centim. apart, uppermost 17 centim. from sound-hole. Five bands of tin encircle the instrument in the interspaces between stops 2 to 7; the rest of the instrument is covered with phyllomorphic patterns carved in low relief, the background being stained red with dragon's blood. Length 32 centim.; diam. 1·6 centim.

Catalogue No. 1044. Presented to the Museum by a Sea-Dyak boy at the S. P. G. Mission School.

It is more than likely that this specimen is copied from a European model; the number of stops and the very oblique truncation of the proximal end are most unusual; still No. 556 is more or less intermediate between this school-boy's specimen and such a one as No. 63, so that I have thought it worth while to include a notice of it.

The next instrument of this class is of a different type, it is a clay whistle not unlike the "Ocarina" of European manufacture.

2. Sea-Dyak—*Penyipu*. (Plate VII fig. 8).

A hollow ovoid of white clay, sharply pointed at one end, truncate at the other. There is a large sound-hole putting the cavity of the instrument in communication with the exterior. A narrow duct runs from the closed truncate end through the wall of the whistle to the lip of the sound-hole; it has evidently been bored with a fine piece of wire or grass stem whilst the clay was still soft. There are two key-holes of narrow diameter on the opposite side to the sound-hole. Length 13·3 cm.; greatest diam. 5 cm.

Catalogue No. 990. D. J. S. Bailey, Esq. [P]. From Kabong, Saribas River.

## CLASS VI.

PIPES—With single "beating" reed (Clarionet type).*

(Plate VIII fig. 13.)

I long believed that this extremely primitive form of reed instrument was non-existent in Borneo; it is true that St. John (quoted by Ling-Roth l.c. Vol. II. p. 259) describes a musical instrument in use amongst the Muruts,† which appears

* For an interesting account of wind-instruments of this class see H. Balfour "The Old British Pibcorn or Hornpipe and its affinities" (Journ. Anthrop. Inst. Nov. 1890). Mr. Balfour figures and describes reed-pipes from England, Grecian Archipelago, Egypt and India; nearly all are double pipes like the Bornean simpler instrument, but they all are probably derived from a single pipe cut from a cornstalk, reed or bamboo. Mr. Balfour's quotations from Vergil, Chaucer, Spenser and Shakespeare are very much to the point.

†"Two thin bamboos, about twelve inches long, were fastened very neatly side by side; in one was cut four holes like those in a flute, while the other had a piece of grass inserted in the lower end. A slight incision was then cut across both towards the upper portion. The performer thrust this instrument rather deep into his mouth and blew, and then, with the aid of tongue, fingers and moving the grass, produced some very agreeable and wild tunes."

to have some simple sort of vibratory apparatus, but the description is rather vague so that it is not easy to recognise the construction of the instrument from it. Recently Mr. E. W. Byrde presented to the Sarawak Museum two primitive bamboo pipes with "beating" reeds from the Land-Dyaks of Upper Sarawak and later I myself had the opportunity of seeing similar instruments played by Land-Dyaks of the Upper Sadong district. I have now no doubt that St. John's description of the Murut pipe applies to an instrument entirely similar to the Land-Dyak examples. No other tribes in Borneo but these two—Muruts and Land-Dyaks—appear to employ this instrument.

1. Land-Dyak —*Serubayi* or *Seruné*.

*a*. (Plate VIII fig. 13.)

Two slender tubes of bamboo bound together with a grass strapping; the proximal ends are closed by the natural septa and the wall of the tubes has been pared down for a length of about 7 centim. so as to be quite thin; a vibrating tongue (*jorah*) has been cut in this part of the wall in each tube by slitting from above downwards a slender strip) thus forming a "beating" reed; a fine hair is tied round one pipe to restrict the play of the tongue. One of the tubes, known as the *laki* or *male tube* is provided with five stops (*quayet*) about 2·6 centim. apart, the other, known as the *puan* or *female tube*, has none. The *laki* has a short length of bamboo (*tubu*) fitted over its distal end whilst the distal end of the *puan* or drone-pipe is obliquely truncated. Length of *laki* 49·1 cm.; length of drone-pipe 37 cm.

Catalogue No. 1275. E. W. Byrde, Esq. [P. 6. vii. 03.]

*b*. A very similar specimen, but each pipe has a short length of bamboo fitted over its distal end; length of *laki* 46 cm. length of drone-pipe 40 cm.

Catalogue No. 1276. E. W. Byrde, Esq. [P. 6. vii. 03.]

Both of these come from Krokong village, Upper Sarawak, and are known as *Serubayi*. The note of the drone-pipe is supposed to be the same as the note of the *laki* when all the stops but the fourth are closed, and in order to tune the pipes either

a length of bamboo is added to one or to both or the distal end of one is obliquely truncated, thus practically reducing its length. If in spite of these devices the pipes are still out of tune a length of grass or wood splinter (*adjok*) is pushed up the drone-pipe and moved up and down until the correct note is hit off. Mr. Byrde informs me that one of the specimens just described was cut to almost accurate lengths and required no tuning with the *adjok*.

*c*. Very similar to the two preceding specimens, the *laki*, however, has only four stops about 3 centim. apart, the drone-pipe is pierced with five stops but they have all been plugged up with wax. The distal ends of the pipes are cut square and are not fitted with lengths of bamboo. Length of *laki* 43·5 cm.; length of drone-pipe 38·7 cm.

Catalogue No. 1324. [Pd. viii. 03.]

From Piching village, Upper Sadong. Known as *Seruné*. The performer on this instrument tuned it by thrusting a piece of grass up the drone-pipe and moving it up and down until he hit off the correct note. As the vibrating tongues are cut at some little distance from the proximal ends of the pipes, these have to be thrust well into the mouth; a continuous blast was given by inhaling with the nostrils and blowing into the instrument with the mouth simultaneously, just as in using the chemist's blowpipe.

The Land-Dyaks of Quop, Sarawak river, also play these pipes; they always leave the proximal ends open and close them, when playing, with the tongue, the 'beating' reed is cut much closer to the proximal end than in Krokong or Sadong examples; sometimes three pipes are bound together, two being drone-pipes. A good set will be kept in a bamboo full of water, as the pipes are generally made from fresh-cut bamboo stems and when they become dry the tongues will not vibrate effectively.

## Class VII.

Mouth-organs—with single 'free' reed. (Plate III fig. 9).

These instruments, which are figured in almost every book on Borneo, consist of a hollowed gourd with a long neck the

mouth piece of the instrument; into the gourd are set six to eight bamboo tubes, the joint being made air-tight with a luting of dammar; the tubes are closed at their lower ends but into each near its lower end * is let a small frame of *apeng* palm wood (*Arenga* sp.) or of brass with a vibrating tongue (Plate VII fig. 10); each tube has a stop and if these are not closed by the fingers no sound can be produced by blowing into the neck of the gourd; the tubes are of unequal length and are tuned by being cut more or less obliquely at their upper ends, and one is generally much longer than the others.

This form of mouth-organ seems to be essentially a Mongolian type very similar instruments being found in China (the *Seng* or *Cheng*), Japan and Siam; Hein (Die Bildenden Künste bei den Dayaks auf Borneo. Vienna, 1890 p. 116 fig. 78,) figures a Chinese *Seng*, a mouth-organ of the Mrung of India and a Kyan mouth-organ, and notes that all are constructed on essentially the same principle, he does not, however, describe the form of the vibratory apparatus in any of these instruments so it is quite possible that the Mrung mouth-organ is furnished with 'beating' reeds instead of 'free' or 'framed' reeds.

A good figure of a Kyan youth playing on a mouth-organ is given in "In Central Borneo" by Dr. A.W. Nieuwenhuis, Vol. II. pl. lxxxviii.

The instruments are played more by suction than by blowing. The Bornean tribes who use this instrument are the Kyans, Kenyahs and allied tribes, the Dusuns, Punans and the Sea-Dyaks, it is almost certain that the latter and very probable that the Punans have borrowed this instrument from the Kyans or Kenyahs.

1. Kyan—*Klerdi.*

*a.* (Plate III fig. 9 right hand specimen).

Of large size; six bamboo tubes open at the top are inserted into a large hole cut in a hollow gourd (*labu ayer genok*,) the joint being rendered air-tight by a luting of dammar;

* *i.e.* in that portion of the tube inside the gourd.

the gourd has a long curved neck which forms the mouth-piece of the instrument. One of the bamboo tubes is 130 centim. long from its point of insertion into the gourd, its top is slightly obliquely truncate, its note is lower C; another is 75·5 centim. long with the top cut square and its note is lower E; a third is 75 centim. long, with note lower F; a fourth 74·6 centim. long with note lower G; a fifth is 74 centim. long but is so obliquely truncate that its functional length may be reckoned as 56·8 centim. only, its note is middle B; the sixth is very similar but its length may be reckoned at 55·2 centim. with the note middle C. The bundle of tubes is bound together by an encircling band of plaited rattan. A cap of bamboo cut from a node, with a long projecting tongue rests on the top of the longest tube, to the lower end of the tongue is attached a string tied at its other end to a plaited band of rattan that slips freely over the bundle of tubes, the outside of the cap has a frill of shavings scraped partially off it; when the cap is pulled down hard over the top of the long tube the note of that tube is rendered more resonant. Total length (in a straight line) 119·3 cm.; length of gourd (in a straight line) 23.8 cm.

Catalogue No. 1085. [Pd. 10. x. 00].

This specimen is in good working order and as it has not been dissected it is impossible to say whether the vibratory apparatus is of brass or of palm-wood. Ling Roth (l.c. vol. II p. 259) figures an almost identical specimen and gives the notes produced by it.

*b*. Very similar to the preceding, but in bad condition when received and it has been dissected to exhibit its construction. The gourd has a star-shaped hole cut in it to receive the tubes. One of the tubes is 72 centim. long, the rest vary between 60 centim. and 60·5 centim. two are very obliquely truncated at their top ends. The vibratory apparatus is made of *apeng* palm (*Arenga* sp.) the tongues have each a little knob on their ends (Plate VII fig. 10) to increase their range of vibration.

Catalogue No. 1246 Hon. C. A. Bampfylde. [P. 26. ii. 03].

2. Punan—*Mouth-Organ.*

The gourd of the preceding specimens is replaced by two hollowed pieces of wood, joined together with a luting of dammar and three stitches of rattan; the two halves have been shaped to form a very fair imitation of a gourd with a long neck. The usual six tubes are let into this sham gourd and luted with dammar. The longest tube measures from its point of insertion into the gourd 67·5 centim.; its top is slightly obliquely truncate and it is covered by a bamboo cap like that of No. 1085, its note is middle A flat. Three tubes are shorter their lengths varying from 46·7 centim. to 47·2 centim. their tops are cut square and their notes are middle B, middle C (not quite true) and middle D. Another measures 46·4 centim.; but it is very obliquely truncate so that its functional length may be reckoned at 34·3 centim.; its note is upper F. The sixth tube is 43·8 centim. with functional length of 33·5 centim. and note upper G. Total length (in a straight line) 72 centim.

Catalogue No. 1260. [Pd. iii. 03].

The Punans are a nomadic jungle tribe who neither plant nor sow; having probably borrowed the idea of the mouth-organ from neighbouring Kyans or Kenyahs, it was necessary to make imitation gourds of wood as they have no real gourds of their own.

3. Sea-Dyak—*Engkerurai.* (Plate III fig. 9 left hand) specimen.

Much smaller than the Kyan *klerdi.* The longest tube measures 67·5 centim. the others 44 centim. to 44·5 centim. two of these are very obliquely truncate. The bundle of tubes is bound round a central upright of wood by a band of plaited rattan. The vibratory apparatus is of brass. The instrument is not in working order. Length (in straight line) 70 cm.

Catalogue No. 61. Brooke Low collection.

The Sea-Dyak mouth-organ is generally much smaller than the Kyan one; the longest reed is usually provided with a cap of bamboo to act as resonator, but the most efficient resonator that I have seen was a small tin through the bottom of which the

long tube passed. Ling-Roth (l.c. vol. II p. 259) figures a Dyak engkerurai with seven reeds and states:—"Some of the notes appear to be FACF—F octave nearly; two holes in one reed, note unascertainable; two reeds appear to have no note [? defective vibratory apparatus. R.S.] Longest reed (one which has no note) to junction with gourd, 31 in.; diam. of gourd, $3\frac{3}{4}$ in. (Edinboro' Mus)."

The Kenyah mouth-organ is known as *Slidap*. The Dusun mouth-organ has eight reeds set into the gourd in two rows of four, four are short and equal, four are longer and unequal, there are no stops but the fingering is performed on the ends of the four equal short pipes, the others acting as drone-pipe (cf. Ling-Roth l.c. vol. II p. 260).

There is no specimen of a Dusun mouth-organ in the Sarawak Museum.

## *JEWS-HARPS.*

The jews-harp of the Borneans are made either of Palm wood such as *Arenga* sp. (*Aping*), *Arenga saccharifera* (*ijoh*) and *Orania macrocladus* (*ibul*) or else of brass. In all, sound is produced by causing the tongue of the instrument to vibrate, either by jerking upon a string attached to one end of the instrument or else by jarring the frame of the instrument by repeated taps with the finger. "A single note is thus produced, and, in order to gain a variety of notes, the instrument is held to the performer's mouth, which also performs the function of a resonator. To quote Sir George Grove, 'A column of air may vibrate by reciprocation with a body whose vibrations are isochronous with its own, or when the number of its vibrations are any multiple of those of the original sounding body. On this law depends the explanation of the production of sounds by the jews-harp. The vibration of the tongue itself corresponds with a very low sound; but the cavity of the mouth is capable of various alterations; and when the number of vibrations of the contained volume of air in any multiple of the original vibrations of the tongue, a sound is produced corresponding to the modification of the oral cavity.'" (H. Balfour Journ. Anth. Inst. Vol. XXXII p. 169, 1902). The Sea-Dyaks employ wooden and brass

jews-harps which are caused to sound by jerks on a piece of string attached to one end of the frame of the instrument, the other end of the frame is held between the finger and thumb of the other hand. The Dusuns employ a wooden jews-harp but play it by repeatedly striking one end of the frame with the fore finger of the right hand and the Land-Dyaks play on a brass jews-harp in the same way. The Dusun and Land-Dyak jews-harps are produced at one end to form a handle but the Sea-Dyak forms have usually no handle the instrument consisting merely of a tongue and a frame the ends of which are roughly symmetrical.

1 Sea-Dyak—*Ruding.*

*a.* (Plate V fig. 13, second specimen from the bottom).

Made of apeng wood (*Arenga sp.*) with the cuticle still left on the face of the instrument; the back of the instrument is longitudinally concave and the wood has been scraped down so that it is quite thin except at the ends which are thick and almost flat. The tongue is 8 centim. long its proximal half is 0·5 centim. broad, its distal half only 0·2 centim.; there is a marked 'shoulder' half way down the tongue. The frame follows the outline of the tongue. The ends of the instrument are bluntly pointed. To one end of the instrument a short piece of string with a slender wooden toggle is attached; through a hole in the other end passes a short loop of string, which is stretched taut by the third and fourth fingers of the left hand when the instrument is held ready for playing between the finger and thumb of the same hand. The instrument is contained in a small case of bamboo decorated with a phyllomorhic design in low relief with the background stained red by dragon's blood.

Total length 10·8 cm.; breath 1·5 cm.

Catalogue No. 204. Brooke Low collection.

*b.* (Plate V fig. 13, third specimen from the bottom).

Very similar to the preceeding, but the ends more pointed. It is contained in a bamboo case decorated in the same way as the case of No. 204. Length 14·7 cm.; breath 1·5 cm.

Catalogue No. 1112. [Pd. xii. 00].

2. Dusun—*Teruding.* (Plate V fig. 13 bottom specimen, and Plate VII fig. 9).

Made of *apeng* wood. It differs from the Sea-Dyak *rŭding* in the following points :— i.) the back of the instrument is not concave; ii.) one end is produced to form a handle almost square in section ; iii.) one half of the frame is shaved down so as to be very thin, the other half is comparatively thick ; iv.) in order to give a greater range of vibration to the tongue a lump of dammar is attached to it about its middle ; the peculiar shape of the tongue is shown in Plate VII fig. 9.

The cuticle of the wood is left on the handle, as a narrow transverse strip across the middle of the instrument and on the end opposite to the handle, where there also occurs a small dab of resin. The instrument is enclosed in a small bamboo case decorated with incised geometrical designs.

Length 13 cm. ; breadth 0·8 cm.

Catalogue No. 777. From Kiou, Mt. Kina Balu.

Drs. G. D. & H. A. Haviland coll. iv. 92 [P].

Ling-Roth (l. c. Vol. II p. 257) figures a similar example.

3. Land-Dyak—*Stobeong.*

*a.* (Plate V fig. 13 top specimen).

Jews-harp of brass. The tongue (*jorah*) and frame (*bak*) are very thin and quite flat, one end is produced to form a slightly thicker handle (*kopwong*) the opposite end is shaped and notched. The handle is well-marked off from the frame. The tongue has been smeared with lime in order to make it heavier and so to tune the instrument in accord with others.

Length 9·3 cm. greatest breath 1 cm.

Catalogue No. 1273. From Teringoo, Sarawak River.

E. W. Byrde, Esq., [P. 23. vi. 03].

*b.* (Plate V fig. 13 second specimen from the top).

Almost exactly similar to the preceding specimen, but end opposite to the handle cut square.

Length 9·2 cm. ; greatest breadth 1 cm.

Catalogue No. From Krokong village. Upper Sarawak. [E. W. Byrde, Esq. P. vii. 03].

The Land-Dyaks of Quop call this instrument *traing*; the Land-Dyaks of the Upper Sadong call it *jingun*.

These instruments are made very carefully and the owner of a good specimen will not readily part with it. If the tongue, when just cut out from the frame, does not vibrate properly it is carefully filed with the cuticle of a species of bamboo and until it vibrates freely the instrument is said to have no "life" or "soul." At Krokong several men will play jews-harps in concert tuning them by smearing lime on to the vibrating tongues.

4. Sea-Dyak—*Engsulu* or *Ruding sulu*.

*a*. ( Plate VI fig. 13 middle specimen).

Jews-harp of brass; markedly concavo-convex longitudinally, suggesting that it is derived from a wooden model. The tongue tapers to its end. One end of the frame is cut out into three points, the other end is bifurcated, and the two limbs of the bifurcation are rolled up into spirals; a loop of string passes through a hole at this end, a short string with a brass toggle attached to it passes through a hole at the other end.

Length 9 cm.; breadth 0·8 cm.

Catalogue No. 1251. From Lobok Antu, Batang Lupar. [R. Shelford, Esq. P. 5. iv. 03]

*b*. ( Plate V fig. 13 third specimen from the top).

Differs from the preceeding specimen in being nearly flat; one end is produced to form a sort of handle but it is quite thin and flat and is fretted and cut into a pseudo-phyllomorphic pattern. The opposite end of the instrument is "stepped" and a string with a bamboo toggle is passed through a hole here. The tongue does not taper, its proximal half is twice as thick as the distal (cf. *ruding*).

Length 10·1 cm.; greatest breadth, 0·8 cm.

Catalogue No. 610. Brooke Low collection.

Ling Roth (l. c. Vol. II p. 257) figures a handled brass jews-harp but with a string attached to the frame; it is evidently a Sea-Dyak *engsulu* but it has been wrongly named *rodiung*.

This is one of the musical instruments which Dyaks say are possessed of "*Jako*" i. e. articulate speech; the *enserunai* is another but the *ruding* is not. The *engsulu* is played by young men and girls who are lovers; a young man desirous of marrying a girl will, previous to matrimony, visit at night his *inamorata* in her mosquito curtains and will play to her on his jews-harp, she will reply on her jews-harp and it is said that the notes of the instruments can be translated by experts into articulate language in the form of a poem.

## *PERCUSSION INSTRUMENTS.*

I. Wooden resonators and harmonicums.

II. Metal gongs.

III. Bells.

IV. Drums.

### Class I.—Wooden Resonators and Harmonicums.

These have been superseded almost every where by metal gongs made for the most part in Java and China.

1. Land-Dyak—*Lalipok*. (Plate VI fig. 14).

These are merely portions of a bamboo joint with the wall scraped quite thin, one end is closed by the septum the other is open. The open end is knocked against some hard substance such as an ironwood post. They are played in accompaniment with the *ton-ton* (cf. antea p. 17). Length 24·2 cm. and 37 cm. diam. 5 cm. and 5 cm.

Catalogue Nos. 1297 *a* and *b*. [Pd. ix. 03.] From the Upper Sadong District.

2. Land-Dyak—*Pelonchong*. (Plate VI fig. 14).

Two pieces of bamboo joints, the walls not scraped thin but with a hole cut in one side; one end is closed by the septum

the other is open. The instruments are beaten with a short stick to accompany the *ton-ton*. Length 49 cm. and 43 cm. diam 5 cm. and 5.2 cm.

Catalogue Nos. 1298 *a* and *b*. [Pd. ix. 03]. From the Upper Sadong district.

3. Land-Dyak—*Krotong*—Wooden harmonicum.

A set of six slabs of hard red wood (*mellobi*) ranging in length from 49 centim. to 40 centim., in breadth from 7 centim. to 5 centim., in thickness from 3·5 centim. to 1·5 centim. The notes emitted when the slabs are struck do not form a regular scale. Three slabs (*anak*) are marked at one end with a streak of white paint and these give higher notes than the three others (*endor*) which are marked with a cross. The slabs are laid on a block of soft wood or on the legs of the performer and are tapped with two sticks (*bokan*); sometimes two men play, one striking the *anak* the other the *endor*.

Catalogue No. 1280. E. W. Byrde, Esq. [P. 9. vii. 02].

This example was made at Krokong, Upper Sarawak, and was in use for many years at feasts and funerals. Brooke Low mentions similar specimens, but made also of stone in use amongst the Sea-Dyaks. Burbidge gives an account of a Kadyan "triangle or its music rather, being represented by two or three steel hatched leads which were laid across laths on the floor and beaten in time with a bit of iron" (cf. Ling-Roth l.c. Vol. II p. 263).

4. Maloh—*Tengkuang*—(Plate IV fig. 11, left-hand specimen).

A long narrow rectangular block of *tapang* wood with a scroll handle projecting from the left-hand end (upper end in the figure). It is narrower at the top (right-hand side in the figure) than at the bottom, the sides sloping in from a line just below the middle line. A deep longitudinal cavity is scooped out of the block of wood; it slopes up at either end. On one side (that seen in the figure) there is at either end a perpendicular border of of phyllomorphic design carved in deep relief whilst a broad horizontal border of incised phyllomorphic design runs along the lower half of the instrument; on the other side the

two perpendicular borders consist of incised lines bounding a series of diamond shaped figures, the horizontal border is similar to that on the other side.

There are two drum sticks also of *tapang* (*Abauria excelsa*) wood ; each is bored at the top with a hole and they were once joined together by a length of string ; they are slightly decorated with incised lines but the patterns which it was intended to form have never been completed. Length 61 cm. ; breadth at top 7·5 cm. ; breadth at bottom 11 cm. ; height 22 cm. ; length of stick 24 cm.

Catalogue No. 57. Brooke Low collection.

The instrument has been figured by Ling-Roth (l. c. Vol. II p. 263.) A large block of wood shaped like a pig and hollowed out, hangs by the antimony works of the Borneo Co., at Busau, Upper Sarawak ; it is beaten to call the men to work and emits a very loud resonant sound ; it was made by a Malay.

## Class II—Metal Gongs.

From a native point of view these are the most important of all musical instruments. Formerly certain varieties of gongs were in universal use as currency and at the present day fines levied on natives by the Sarawak Government are paid in many cases in gongs, brass ware, and old jars. The large heavy gongs known as *tawaks* are worth any thing from $30 to $100, not only their weight but their tone and resonance being taken into account by the appraisers. The wealth of a chief consists chiefly of gongs and jars, and his collection of the former, is if he is in prosperous circumstances, always increasing. They are played at ceremonies and festivals of every description and the noise produced by the beating of twenty or thirty gongs all at the same time can be better imagined than described. The Land-Dyaks of Quop have definite names for the different rhythms with which a series of gongs can be beaten and I have no doubt that the same is the case amongst other tribes.

The four principal varieties of gongs are:—

1. *Gongs* proper ; large shallow gongs with flat boss or none at all.

2. *Tawak*; large deep gongs with hemispherical boss.

3. *Chanang*; medium sized gongs with hemispherical boss, sometimes elaborately ornamented.

4. *Kromong*; small gongs with hemispherical boss, always sold in sets of seven or eight and played somewhat like a chime of bells.

All are made of brass and most are cast by a *cire perdue* process, though the older and more valuable ones have been melted and hammered into shape.

The place of origin of some specimens is extremely doubtful, but generally speaking the following may be regarded as fairly accurate :—*Gongs* proper come from China, their value is small and but few are bought by Dyaks and other natives; *Tawak* are made in Java and perhaps by Malohs, as already noted their value is considerable; *Chanang* are made in Java, in Kuching by Sarawak Malays, and in Brunei by Brunei Malays, the latter being usually highly ornamental and worth $15 to $25, a Javanese *Chanang* may fetch a very high price; *Kromong* were formerly made in Java but all modern specimens are made chiefly in Kuching by Sarawak Malays, modern specimens are moderate in price.

1. *Gong.* (Plate IV. fig. 12, specimen in the background) large shallow gong of (?) Chinese origin, with a flattened boss. Diam. 66 cm.; depth 8 cm.

Catalogue No. 1225. [Pd. xi. 02].

2. *Tawak* or *tetawak.* Large brass gong, said to have been made by Malohs, with large hemispherical boss and slightly raised central area. It is very deep and the sides slope in from front to back. It has been cast and then hammered. Diam. in front 60 cm.; at back 45 cm.; depth 27 cm.; thickness 0·5 cm.; weight 37 lbs.

Catalogue No. 1256. The Sarawak Government. [P. 14. iii. 03].

This specimen some years ago was deposited in Sibu fort as a pledge of good faith by a native chief but it was never redeemed ; it has been valued by Malays at $70.

3. Brunei Malay—*Chanang naga.* (Plate VI· fig. 15).

Brass gong with hemispherical boss; the face is decorated with two dragons in bold relief and with a geometric pattern round the border and between the dragons in lower relief, the side is also ornamented with a geometric pattern in low relief. The gong is suspended by a chain with two diverging limbs, one of the links in the middle of each divering limb is cast in the form of a bird and the junction of the diverging limbs with the main chain is marked by a similar but larger link. Diam. in front 49 cm. at back 39·4 cm.; depth 12 cm. Total length of chain 58 cm.; of diverging limbs 35 cm.

Catalogue No. 1268. [Pd. ii. vi. 03].

These gongs are cast by a *cire-perdue* process; a rough model of the gong is first made in wood, over this is spread a layer of wax the surface of which is carved and tooled into the desired pattern, the wax is lifted off the wooden model in two pieces—the front and the side,—these are then joined and backed with more wax, and a mould of clay mixed with sand is built upso as to completely enclose the wax pattern, a small spout being left at one point; the whole is then burnt in a kiln and the melted wax is poured out of the spout of the clay mould and the molten brass poured into it. A new wax pattern has of course, to be made for every gong.

The dragons certainly suggest a Chinese origin for these gongs, still the dragon is also prominent in Indonesian art so that it would be rash to dogmatize on the subject. The significance of the bird-links in the suspensory chain I have been unable to discover.

4. Sarawak Malay—*Chanang.*

Small brass gong with hemispherical boss and raised central area ; cast by *cire-perdue* process in Kuching. Diam. in front 33·9 cm., at back 30·1 cm. depth 7·8 cm.

Catalogue No. 1208. [Pd. xii. 02].

5. Sarawak Malay—*Kromong*. (Plate IV fig. 12).

A set of eight small brass gongs, each with hemispherical boss and slightly raised central area. They rest on strings fastened to the cross-pieces of a long wooden frame and are struck with two wooden beaters. Diam. of largest gong 19·6 cm., of smallest gong 17·8 cm.; all are 6·5—6 cm. deep.

Catalogue No. 1209. [Pd. xii. 02].

These *Kromong* were cast in Kuching. The process is much the same as that previously described; the wax is spread thinly over a wooden model (*chuan*) pitted all over with small depressions, the purpose of which is to give an appearance of hammer-marks; the old Javanese *Kromong* were all melted and beaten into shape and distinctly shewed the hammer-marks all over their surface, and the same appearance is simulated in the modern article. The wax is peeled off the wooden model as already described and enclosed in a mould of clay mixed with sand (*tanah balut*) with a spout for the exit of the melted wax and the entry of the molten brass When the gongs are removed from their clay moulds they are roughly smoothed down with a file and are set in a row on a frame like that shewn in the figure, the maker then tunes them by tapping them with a hammer and finally blackens them with a mixture of copper sulphate and an extract of *lirang* a plant used also medicinally for skin diseases.

## Class III. Bells.

1. Brunei Malay—*Grunong*, cow-bell.

A spheroidal brass rattle flattened from side to side, cast in brass, hollow with a slit running half way round the lower border; the handle of the rattle is in the form of a bird with a ring springing from its back, on each side of the rattle is a snake in bold relief and an outstanding ring; there is a ring just above each end of the slit running round the lower border of the rattle. A small brass sphere inside the hollow of the rattle acts as a clapper.

Length (in a straight line) 9·8 cm.; diam. 6·1 cm. × 4·8 cm. [Pd 6. xi. 02.]

Catalogue No. 1187.

This is the only form of bell that I have met with in Borneo with the exception of small metal rattles that are worn as ornaments (trimmings to kirtles, buttons to necklets, etc.)

## Class IV. Drums.

These are used by every tribe in Borneo; they are played with gongs at feasts and funerals.

1. Land-Dyak (Bukar sub-tribe.)—*Gehong.*

Single membrane drum made from one and a half joints of a very large species of bamboo; the intervening septum is broken through; one end is open, the other is closed by a diaphragm of monkey's skin (*Macacus nemestrinus*), secured by rattan in the manner shewn in fig. 1, Plate VII., the loops of rattan however being connected by a transverse double twist of rattan. Height 84 cm.; diam. 12 cm.

Catalogue No. 1294. [Pd. viij. 03].

From Lanchang, Upper Sadong.

I noted in the rafters of the head-house (*baluh*) at Lanchang village, a very large drum known as *sabang* cut out from a tree trunk, it was at least 5 feet high and 1 foot in diameter, but I was unable to secure it for the Sarawak Museum as it was used only at head-feasts and was regarded as "*pemali.*" Similar gigantic drums are used at Krokong, Upper Sarawak.

2. Sea-Dyak—*Gendang.* (Plate III fig. 10, left hand specimen).

Single membrane drum made of a hard black wood, roughly shaped like an hour-glass, hollow throughout, the cavity in shape corresponding to the external form: the lower end is open, the upper is closed by a skin diaphragm secured by rattan lashings and loops; the method of lashing the diaphragm on to the drum-head is slightly different from the usual method and is

shown on Plate VIII fig. 14, the edge of the diaphragm is not doubled over, the rattan loops pass alternately over and under the encircling band *a* and then down to and round a plaited rattan band which is prevented from slipping by wedges. Below the plaited rattan band is a raised zone on which is carved in bold relief the following patterns :—

1.) A conventional flower *buah andu*, (*Plukenetia corniculata*).

2.) On each side of this a rough geometrical design, three scrolls in a square.

3.) An intertwisted double loop pattern, *ensilup* (i. e. interlocking).

Twelve shirt buttons are let into the centre of (1), two are let into each scroll of (2) and there is one in each loop of (3). Below this zone is a circle of incised triangles, *puchok rebong* (i.e. young shoots of bamboo) and round the foot of the drum runs an incised single loop pattern. Height 18 cm.; diam. at top 13·4 cm.; diam. at bottom 20 cm.

Catalogue No. 58. Brooke Low collection.

The Sea-Dyaks of the Balau River and the Sibuyaus call this instrument *Ketubong*. I have seen specimens with a diaphragm of *Varanus* skin. The performers on this instrument and the Land-Dyak *Gehong* sat cross-legged on the ground, the drum lying across one thigh and kept from slipping by the opposite foot, and the diaphragm was beaten with the tips of the fingers and the palmar surface of one hand.

A Murut *gendang* is figured by Ling Roth (l. c. Vol. II p. 263).

3. Malay—*Gendang prang*.

(Plate III fig. 10, right hand specimen).

Double membrane drum formerly used in warfare, but now employed at festivals. It is almost cylindrical, hollow throughout and made of *mirabou* wood (*Afzelia bijuga*), it is slightly narrower in diameter at one end than at the other and its greatest diameter is across the middle. Both ends are closed with dia-

phragms of parchment, secured in the following manner:—the edge of the parchment is gripped between two strips of split rattan encircling the drum, these gripping bands are given a half-turn up, a continuous loop of split rattan is laced through holes in the double fold of parchment (formed by turning up the gripping bands) and passes to the other end of the drum to be similarly laced through holes in the diaphragm there; the adjacent limbs of the loops are braced together by bands of plaited rattan (Plate VIII fig. 15). A small square hole is cut in the side of the drum to increase the resonance and a string sling passes through holes above and below this. Height 53 cm.; diam. at one end 22 cm.; diam. at the other 20 cm.

Catalogue No. 1227. [Pd. 29. 1. 03].

4. Malay—*Gendang rebana*. (Plate IV fig. II right hand specimen.)

Bowl-shaped drum of *mirabou* wood, the top is closed by a diaphragm of sheep's skin, the bottom is open. Into the rim of the bottom are driven ten square wooden pegs, their free ends rest on and press against a circle of rattan round which pass the rattan loops that secure the diaphragm; the chief function of this rattan circle and pegs is to act as an insulator, raising the drum from the ground and so increasing its resonance. The diaphragm is secured in the same way as shewn in Plate VII. fig. 1, except that the descending loops of rattan are in ten groups of four or five loops, any one group being widely separated from that on either side of it; there are ten such groups and they correspond with the ten wooden pegs in the bottom rim of the drum; further, the edge of the diaphragm is doubled back to cover the rattan lacing and this is kept in position by a single encircling rattan laced through it.

Immediately before use the diaphragm is tightened by pushing between it and the upper rim of the drum from the inside a circle of thick unsplit rattan, known as the *sidak*; when the drum is not in use the *sidak* is kept coiled up inside the drum.

Height 18 cm.; diam. at top, 44·5 cm.; diam. at bottom 24·8 cm.

Catalogue No. 1246. [Pd. 28. 1. 03].

## Addenda.

Since going to press my friend Mr. W. Howell has sent to the Museum a toy musical instrument used by Sea-Dyak children; as it is so very different from every other form of musical instrument found in Borneo, I cannot refrain from adding a brief description of it:—

Sea-Dyak—*Sulieng*—toy "squeaker."

A piece of the stem of a species of *Calamus* known as *Kerniong*, 21 centim. long and 1 centim. in diameter; one end is open and cut square, the other is closed by the natural septum, a very narrow crack runs down the whole length of the instrument on one side, in fact it is so narrow as to be hardly perceptible from the outside. A blast of air driven into the tube just forces apart the sides of the crack, but they quickly close again by virtue of their elasticity and curvature. If the pressure of air is maintained they are forced open again, close again and so on; in other words the sides of the tube bordering the crack vibrate and constitute a "partial" valve through which the air issues in a pulsatory manner producing a loud and penetrating squeak. The instrument may be compared with the trumpet class though in that class the lips of the performer constitute the "partial" valve, not the walls of the instrument itself. Malays know this instrument as *seruné*, the same term as that employed by Land-Dyaks of the Bukar sub-tribe for their pipes with "beating" reeds.

Catalogue No. 1363. Rev. W. Howell [P. 6. xij. 03].

The wooden clappers used by Sea-Dyaks are also worthy of note. These instruments, which are known variously as *tongkat be-igi*, *tangkat krutak tugal be-igi*, *tugal bekurong*, and *tugal klek*, are long staves of hard wood with an enlarged head, the head is hollowed out but a loose block of wood occupies part of the hollow and slides up and down when the staff is shaken; this block is cut out of the head itself, the hollowing of the head and the freeing of the block being negotiated through four longitudinal slits in the head. The staffs are used as padi-dibblers, and they are carried and sounded at intervals by the

principal celebrant at that part of the religious festivals when the *Mengap* is being recited; they are also carried and rattled by any one when walking in the dark to give notice of his coming to spirits, men and animals.

Sea-Dyak—*Tongkat krutak.*

*a.* A long staff of hard wood, the lower end thickened and pointed and with an enlarged four-sided head 40·5. centim long; the angles of the head are marked by wide slits, through which the head has been hollowed out, a sliding block of wood 20 centim. long being left in the hollow. The passage of the stem of the staff into the head is sudden and is marked by a little carving and a narrow band of plaited rattan; the top of the head is crowned with a finical and a tuft of grass.

Total length 239 cm.

From the Krian River. I. Kirpkatrick, Esq. [P. 28. xiii. 96.]

Catalogue No. 999.

*b.* A similar specimen, but the lower end is much thicker and less pointed; the head is round in transverse section and the hollowing of it and the freeing of the sliding block has been conducted through three slits only; the rest of the staff instead of being of equal diameter throughout is marked with seven circular blunt ridges at unequal distances apart; the passage of the stem into the head is very gradual; the head has a long carved finical but no tuft of grass.

Total legth 262 cm.; length of head 36·5 cm.; of sliding block 23·5. cm. From the Lamanak River. Brooke Low collection.

Catalogue No. 517.

*c.* Much shorter specimen, the head rather slender and without a finical, which is replaced by a stout projection; the staff is encircled by several narrow ridges some of which are carved to imitate the nodes of bamboo; there are four slits in the head.

Total length 193 cm.; length of head 38 cm.; of sliding block 12·4 cm. From the Engkari River. Brooke Low collection.

Catalogue No. 518.

## Explanation of Plates I.—VI.

Fig. 1. Two Tanjong *busoi* and *aran*, musical bows.
Fig. 2. Sea-Dyak *enserunai*, fiddles.
Fig. 3. Maloh *blikan*, two-stringed guitar.
Fig. 4. Kyan *sapeh*, two-stringed guitar.
Fig. 5. Malay *gambus*, six-stringed guitar.
Fig. 6. Murut and Sea-Dyak *engkratong*, upright-harps.
Fig. 7. Dusun Long Kiput and Kanowit bamboo-harps.
Fig. 8. Murut Kanowit and Sea-Dyak bamboo flutes.
Fig. 9. Sea-Dyak and Kyan mouth organs.
Fig. 10. Sea-Dyak and Malay *gendang*, drums.
Fig. 11. Maloh wooden gong and Malay drum.
Fig. 12. Malay playing on a set of *kromong*, a large *gong* in the back ground.
Fig. 13. Dusun Land-Dyak and Sea-Dyak jew's-harps.
Fig. 14. Land-Dyak *ton-ton*, bamboo-harps, *lalipok* and *pelonchong*, bamboo resonators.
Fig. 15. Brunei Malay *chanang naga*, ornamental gong with suspensory chain.

## Explanation of Plate VII.

Fig. 1. Diagram illustrating the method by which a skin diaphragm is fastened over a resonator of a fiddle or over a drum. The skin is tightly stretched over the mouth of the resonator and tied with a string (*a*), the edge of the skin is then turned up and through the double fold so formed is laced a continuous loop of split rattan (*b*); the lower ends of the loops pass

round a band of plaited rattan (*c*) encircling the resonator at the lower level; wedges (*d*) are driven between this band and the resonator to make all taut.

This method of securing drum-heads and diaphragms is common all through the Malay Archipelago: I have seen a drum from Timor in the Raffles Museum, Singapore, the diaphragms of which are fastened in identically the same way as this.

Fig. 2. Portion of head of stem of Sea-Dyak *enserunai* showing method of attachment of string. (cf. p. 7)

Fig. 3. ditto. (cf. p. 7)

Fig. 4. ditto. (cf. p. 9)

Fig. 5. Portion of stem of Maloh *blikan* (cf. p. 12)

Fig. 6. Dusun guitar $\times \frac{1}{8}$ (cf. p. 11)

Fig. 7. Land-Dyak *sigittuad* $\times \frac{1}{6}$ (cf. p. 9)

Fig. 8. Sea-Dyak *penyipu*, clay whistle $\times \frac{1}{2}$ (cf. p. 33)

Fig. 9. Dusun *teruding*, bamboo jew's harp, seen in profile with the tongue elevated. Nat. size. (cf. p. 43)

Fig. 10. Bamboo "reeds" of a Kyan mouth-organ. Seen in face and in profile.

## Explanation of Plate VIII.

Fig. 1. Proximal end of Sea-Dyak *sulieng san*-transverse flute (semidiagrammatic).

Fig. 2. Proximal end of a nose-flute (semi-diagrammatic.)

Fig. 3. Proximal end of Sea-Dyak *sulieng nyawa*. Flageolet with outside duct (semidiagrammatic).

Fig. 4. Proximal end of Land-Dyak *telarli*. Flageolet with outside duct (semidiagrammatic).

Fig. 5. Diagrammatic longitudinal section of above.
*a*. sound-hole.

Fig. 6. Proximal end of Land-Dyak *kroto*. Flageolet with outside duct (semi-diagrammatic).

Fig. 7. Proximal end of Murut flageolet with outside duct (semidiagrammatic) *a*, luting of dammar; *b*, fragment of leaf stuck on the edge of the sound-hole.

Fig. 8. Diagrammatic longitudinal section of above.

Fig. 9. Kyan *bulo wok*, bird-call $\times \frac{1}{2}$

Fig. 10. Diagrammatic longitudinal section of Sea-Dyak *bumbun*. bird-call, *a*. bamboo tube; *b*. wooden upright; *c*. septum of bamboo joint; *d*. sound-hole.

Fig. 11. Proximal end of Sea-Dyak *sulieng nyawa*. Flageolet with inside duct. (semidiagrammatic).

Fig. 12. Diagrammatic longitudinal section of above.

Fig. 13. Land-Dyak *serubayi*, pipes with 'beating' reeds. $\times \frac{3}{4}$.

Fig. 14. Method of attachment of diaphragm in Sea-Dyak *gendang* (cf. p. 50) — diagrammatic. *a*. encircling band of rattan.

Fig. 15. Method of attachment of diaphragms in Malay *gendang prang* (cf. p. 51) — diagrammatic. *aa*. gripping bands of rattan. The limbs, *bb*. of the loops are braced together by bands of plaited rattan not shewn in the drawing.

## Addenda II.

A very simple form of wind-instrument was quite recently presented to the Sarawak Museum and is briefly described below:—

Land-Dyak—*bashi*.

This is a length of a large species of bamboo with a large circular hole cut in each internode (seven in number), the holes facing different directions. The instrument is fastened at the top of a high tree and the wind blowing across one, or perhaps more, of the holes makes a loud howling noise.

From the village of Quop.

Total length 311·5 cm.; diameter 5·7 cm.

Rev. F. W. Nichols [P]

Catalogue No. 1384.

Sometimes rather a different instrument is in use; one internode only of bamboo is employed and a large hole is cut in it, the internode spins (vertically) on a pivot and is fitted with a vane so that the sound-hole is always turned at the right angle to the wind from whatever direction it may blow.

The bull-roarer can hardly be omitted from a catalogue of musical instruments, even though the specimen described below was used, like the bull-roarers of the Malay Peninsula, merely as a scarecrow. A popular account of the bull-roarer is given by Dr. A. C. Haddon in his book "The Study of Man" pp. 277-327 and some remarks on the relationship between the bull-roarer and other wind-instruments are given by Mr. H. Balfour in a recent number of the Journal of the Anthropological Institute (Vol. XXXII. pp. 173, 174.)

*Narom*—bull-roarer.

A flat piece of wood shaped something like a spear-head, 27·2 cm. × 6·1 cm.; both ends are sharply pointed, but at one end are two projecting "ears," a string passes through a hole

at this end and serves to attach the piece of wood to a wooden stick, 85 cm. long.

D. A. Owen Esq. [P. 24. v. 01].

Catalogue No. 1121.

Dr. C. Hose first discovered the bull-roarer in Borneo in a Kenyah house up the Tinjar River, Baram district and was told that it was used to scare birds off the *padi* fields; Dr. Hose bought the unique specimen and subsquently showed it to some Narom, a tribe living near Claudetown, Baram River; the Narom stated that they were well acquainted with the instrument and frequently used it; they made several specimens to order, one of which is that described above. The Narom constitute a tribe that falls into the Kalamantan division according to Drs. Haddon and Hose—and so may be considered as amongst the most primitive tribes of Borneo.

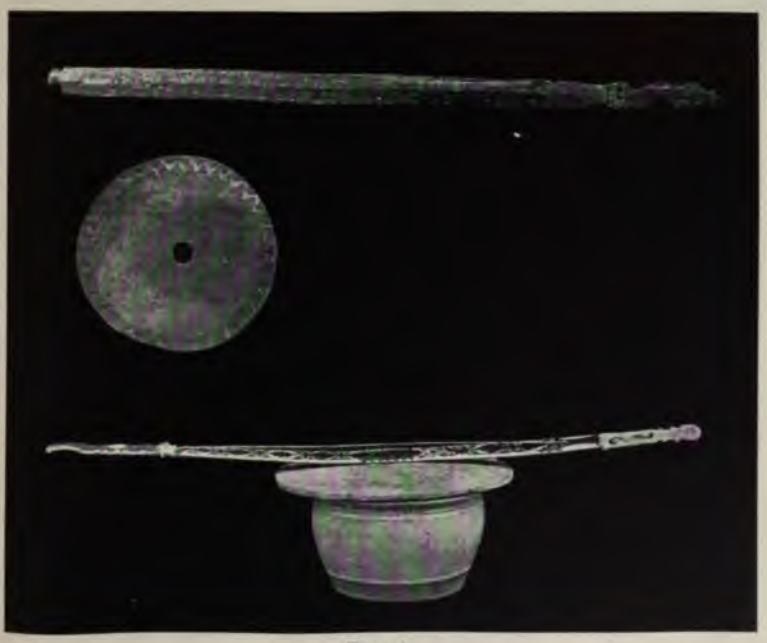


Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

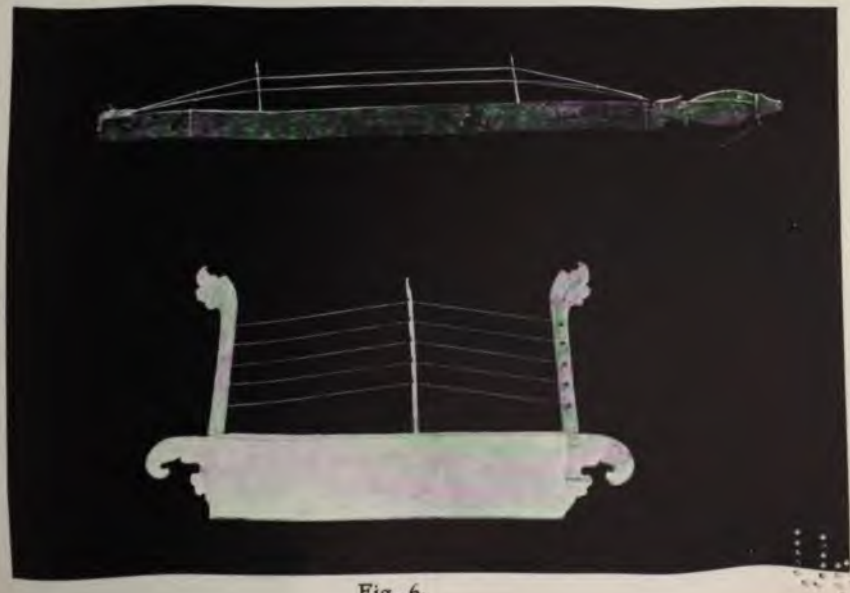


Fig. 6.





Fig. 7.



Fig. 8.



Fig. 9.



Fig. 10.



Fig 11.



*Fig. 12.*



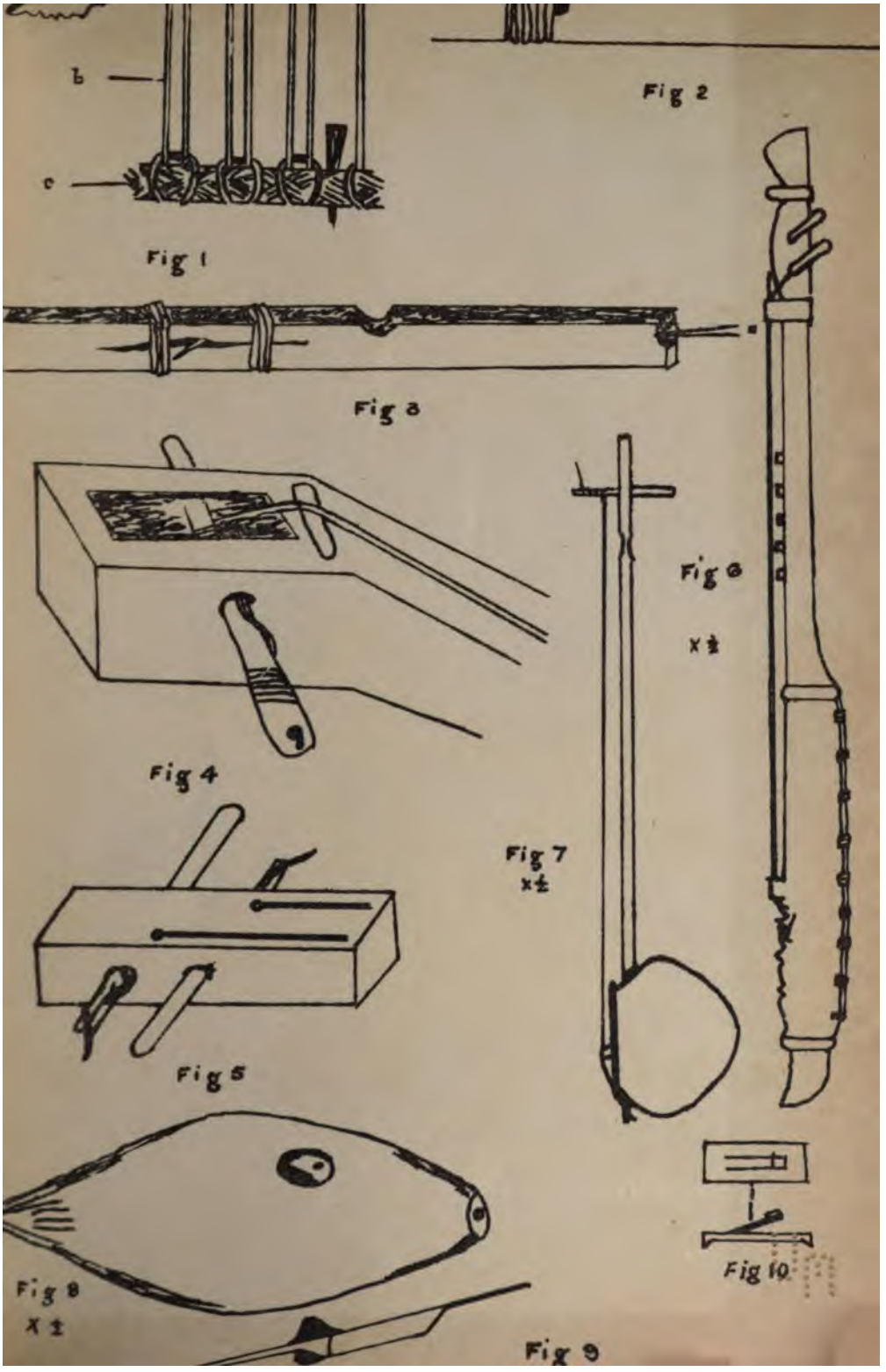


Fig. 13.





Fig. 13.


b
c
Fig 1
Fig 2
Fig 3
Fig 4
Fig 5
Fig 6
x ½
Fig 7
x ½
Fig 8
X ½
Fig 9
Fig 10

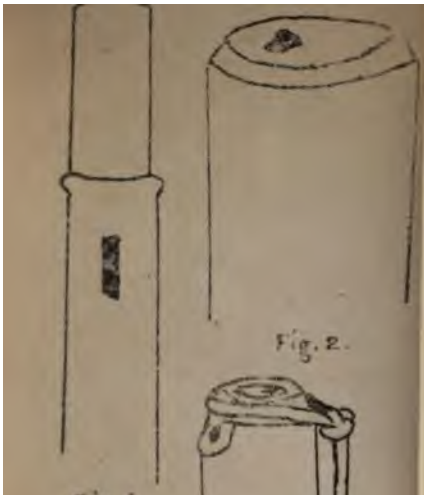


Fig. 2.

Fig 1







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THE

# STRAITS BRANCH

OF THE

# ROYAL ASIATIC SOCIETY.

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*COUNCIL FOR 1904.*

The Right Rev. BISHOP HOSE, *President.*

Hon. C. W. S. KYNNERSLEY, C.M.G., *Vice-President for Singapore.*

Hon. DR. W. C. BROWN, *Vice-President for Penang.*

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REV. W. G. SHELLABEAR,
W. G. ST. CLAIR, Esq.,
} *Councillors.*

# Annual Report for 1903.

The Council have the pleasure to state that the financial position of the Society continues satisfactory, as may be seen by the Treasurer's Balance Sheet.

The number of members at present is 145, including the following gentlemen elected during the year.

| | |
|---|---|
| Dr. Abbott, | Mr. F. C. Marshall, |
| Mr. Eric Maxwell, | „ R. D. Hudson, |
| „ George Maxwell, | „ F. W. Douglas, |
| „ W. H. Craddock, | „ W. S. Gibson, |
| „ A. H. Burn Murdoch, | „ T. C. Hinks, |
| „ E. W. Birch, | „ Hon. H. F. Deshon, |
| „ W. Makepeace | „ Rev. H. C. Izard, |
| „ A. S. Haynes, | „ S. Moorhouse, |

They have to express their great regret at the loss by death of Mr. A. W. O'Sullivan, long a member of the Society and at one time the Secretary, and also of Mr. D. H. Wise and Mr. James Driver.

Only one Journal No. 39 was published during the year but another will be shortly in the hands of the members. An important article by Mr. R. Shelford of Sarawak Museum on the Musical Instruments of Borneo illustrated by a large number of plates will follow as soon as it can be printed.

Referring to the resolution passed at the general meeting last year to procure and publish Malay Manuscripts, the Council desire to state that they have kept the matter in view, but up to the present no Manuscripts considered worthy of publication have as yet been obtained. Two important Manuscripts however have recently been offered to the Society by Mr. George Maxwell, and it is hoped they may appear in the course of this year.

The Library was rearranged and is being catalogued. Many books, journals and pamphlets were received and a number were bound.

During the year a letter was received from the Royal Asiatic Society of Bengal stating that the members of that Society had decided that the members of the Straits Branch of the Royal Asiatic Society should have the right of admission to the Society's meetings whenever they were in Calcutta.

The Society has now attained its twenty-fifth year having been founded on Nov. 4, 1877, and it may be noted that in spite of early prophecies of its soon becoming extinct it has steadily thrived to the present day.

The Treasurer's statement of accounts is appended.

## HONORARY TREASURER'S ACCOUNT FOR THE YEAR 1903.

| | $ | c. | $ | c. |
|---|---|---|---|---|
| Balances brought forward from 1902 :— | | | | |
| Mercantile Bank, Fixed Deposit ... ... | 2595 | 54 | | |
| Chartered Bank, Fixed Deposit ... ... | 700 | 81 | | |
| Mercantile Bank, Current Account ... ... | 348 | 10 | | |
| Chartered Bank, Current Account ... ... | 58 | 95 | | |
| | | | 3703 | 40 |
| Receipts in 1903 :— | | | | |
| Subscriptions for 1901 | 10 | ... | | |
| do. „ 1902 | 50 | ... | | |
| do. „ 1903 | 510 | ... | | |
| do. „ 1904 | 25 | ... | | |
| do. for Life Membership ... | 100 | ... | | |
| Sale of Journals ... ... | 310 | 25 | | |
| Sale of Maps ... ... | 962 | 21 | | |
| Sundry Recoveries ... | 3 | 50 | | |
| BankInterest ... ... | 120 | 71 | 2091 | 67 |
| | | | 5795 | 07 |

| | $ | c. | $ | c. |
|---|---|---|---|---|
| Payments in 1903 :— | | | | |
| American Mission Press ... | 414 | 50 | | |
| Thacker and Spink ... | 27 | 37 | | |
| Mounting of Maps and Binding of Books ... ... | 315 | 25 | | |
| 3 New Book-cases, at $85 each ... ... | 255 | ... | | |
| Clerk's Salary ... ... | 93 | 15 | | |
| Peon's Salary ... ... | 15 | ... | | |
| Postages and Petties ... | 78 | 24 | | |
| | | | 1198 | 51 |
| Balances carried forward :— | | | | |
| Mercantile Bank, Fixed Deposit ... ... | 2700 | ... | | |
| Chartered Bank, Fixed Deposit ... ... | 1000 | .. | | |
| Mercantile Bank, Current Account ... ... | 549 | 29 | | |
| Chartered Bank, Current Account ... ... | 347 | 27 | 4596 | 56 |
| | | | 5795 | 07 |

Examined and found correct.

A. KNIGHT.

R. HANITSCH,

*Honorary Treasurer, Straits Branch, Royal Asiatic Society.*

# OBITUARY.

## Mr. Arthur W. S. O'Sullivan.

Since the date of the last report the Society has had to lament the of Mr. Arthur W. S. O'Sullivan, a member of our Council for several years, and at one time Secretary.

Mr. O'Sullivan was born in 1860 and after a distinguished career at Trinity College, Dublin (scholar and gold medallist), he entered the Straits Settlements Civil Service in 1883.

Throughout his service of twenty years in this Colony he was distinguished as an able hard-working officer and showed a marked talent for languages—he was proficient in Dutch, Tamil, Malay, and more than one dialect of Chinese, which is a record rare amongst Europeans in this climate. He had held the post of Assistant Colonial Secretary for five years and had just been selected by the Colonial Office for the post of Colonial Secretary at Trinidad when he was struck down after a brief illness. Although he was not a frequent contributor to the Journal, the Society has lost in him an intellectual force—a man who took a keen interest in scholarship of every kind. For three years before his death he was engaged in intervals of leisure in the translation of Dr. Snouck Hurgroyjne's Acheen—a valuable and interesting piece of work which will shortly be published at Leiden in Holland.

In endeavoring to open up the wide field of Dutch learning and experience in Netherlands India to English readers, he has set an example for which the Society may well be grateful.

*R. N. Bland.*

# Two Sea-Dyak Legends.

By the Revd. Edwin H. Gomes, M.A.

There are many fairy tales and legends known to the Sea-Dyaks of the present day. These seem to be handed down, by word of mouth, from generation to generation from ancient times.

These stories may be roughly divided into two classes:—

I. Those which are purely fabulous and related as such, and are simply meant to interest and amuse, and in these respects resemble the fairy tales familiar to us all; and

II. Those which are believed to be perfectly true, and to have actually taken place, and are the traditions respecting their gods and preternatural beings. These form in fact the Mythology of the Dyaks.

To the first class belong a large collection of stories corresponding to the Adventures of Brer Fox and Brer Rabbit. In the Dyak tales, the *Plandok* and the *Kekura* (the mouse deer and the tortoise) act always in concert, and their combined intelligence is victorious over the rest of the animal world. To this class also belong the numerous stories related of *Apai Samumang* the Dyak type of cunning and wiliness—and *Apai Saloi*—the typical Dyak fool.

To the second class belong the many and varied adventures of *Klieng*, the great hero of ancient times, and his wife *Kumang*, the Dyak Venus, as well as the traditions relating to the gods believed in by the Dyaks of the present day. To these must be added certain stories which give a reason for some of the curious customs observed by the Dyaks. The two Dyak Myths which follow belong to this latter class.

## I.

## Danjai and the Were-Tiger's Sister.

Once upon a time there lived a great Chief named *Danjai*. He was the head of one of the longest Dyak houses that were ever built. It was situated on a hill in the midst of a large plantation of fruit trees. *Danjai* was said to be very rich indeed. He possessed much farming land, many fruit trees, many *Tapang* trees, where the wild bees make their abode, and from which the sweet honey is obtained, and in his room there were many valuable jars of various kinds, and also a large number of brass vessels; for the Dyaks convert their wealth into jars and brass-ware to hand down to posterity. Every year he obtained a plentiful harvest of paddy much more than he and his family could consume and he had always much paddy for sale, so much so that the news of his wealth travelled to distant lands, and many from afar off would come and buy paddy from him. *Danjai* also possessed many slaves who were ready to help him in his work. All the people in his house had a very high opinion of his judgment, and were ready to obey his decisions, whenever he settled any of their disputes. So great indeed was his reputation for wisdom, that men from distant villages would often consult him and ask his advice when in any difficulty. He had also great fame as a brave warrior, and during expeditions against the enemy, he was the leader of the men of his own village and of many villages around, for all liked to follow such a brave man as *Danjai*, who was sure to lead them to victory. Over the fireplace in his verandah he had, hanging together in a bunch, the dried heads of the enemies whom he himself had killed.

Now this man *Danjai* had a very pretty wife whom he had recently married, but the marriage feast had not been held, because he had not yet obtained a human head from the enemy as a token of his love for her: for this girl was of a good birth and a Chief's daughter and wanted the whole world to learn, when they attended her marriage feast, what a brave man her husband was.

*Danjai* said to his young wife, "I will hold a meeting of the Chiefs around, and tell them that we must all get our war-boats ready, as I intend leading an expedition against the enemy.

I should like to bring you a human head as a token of my love, so that you may not be ashamed of your husband. And as soon as I return, we will have the wedding feast."

And though his wife was sorry that her husband intended leaving her, still she did not oppose his wishes, for she wished him to come back covered with glory.

So a council of war was held, and *Danjai* told the assembled Chiefs what he intended to do, and it was decided that all should begin at once making war-boats, which were to be ready in two months' time.

*Danjai* assisted by his slaves and followers, had been at work at his boat for several weeks, and it was nearly finished. It was a beautiful boat made out of the trunk of one large tree, and *Danjai* was proud of his work. He was so anxious to finish his boat, that one day he started very early in the morning, before his breakfast was ready, and he asked his wife to bring his food to him later on to the part of the jungle where he was working at his boat.

So Mrs. *Danjai* cooked the food and then ate her own breakfast. Then she made up small bundles of rice and also put together some fish and salt, and placed all in a little basket to take to her husband. She had never been out in the jungle by herself before, but she was not afraid, for her husband had told her the way, and she could hear the sound of his adze as he worked at his boat not very far off. She hung her basket over her left shoulder and, holding her small knife in her right hand, went cheerfully on. Presently she came to the stump of a tree on which was placed a bunch of ripe rambutan fruit. They looked so tempting that she could not help eating some of them, and as they were very nice, she put what remained in her basket, saying to herself, "Perhaps *Danjai* forgot to take these fruits with him and left them here. I will take them to him myself, he will no doubt be glad to eat these ripe fruits after his hard work."

Now there was in that land a Were-Tiger, that was much feared by all who lived around. He had the appearance of a man, but at times would transform himself into a tiger, and then he would attack human beings and carry off their heads as trophies to his own house. But he never attacked any unless

they had first done wrong by taking something which belonged to him. So this Were-Tiger would leave tempting fruit by the side of jungle paths, and on the stumps of trees, in the hope that some tired traveller would take and eat them. And if any one ate such fruit, then he or she was doomed to be killed by him that same day. But all knew about him, and though he placed many tempting baits in all parts of the jungle, no one touched his fruit, for all feared the fate which awaited them if they did any such thing. But *Danjai's* wife knew nothing about the Were-Tiger. No one had told her of him, and she had never been out before in the jungle by herself, and she had never been warned not to touch any fruit she might find lying about.

"Oh *Danjai*," she said, as soon as she met her husband, "I am afraid I am rather late. You must be very tired and hungry, working the whole morning at your boat without having had anything to eat. Never mind! Here is your breakfast at last." And she handed the basket which contained his food to her husband.

Now *Danjai* was really very hungry, so he was glad to see his food had arrived. He thanked his wife and at once began to empty the basket.

The first thing he saw was the ripe rambutan fruit at the top, and he asked his wife where she got them from. She told him she had found them on the stump of a tree by the wayside, and she said she thought they had been left there by him. She added with a smile, that they were very good as she had eaten some herself.

Then *Danjai*, brave man though he was, turned pale with fear and anxiety.

"We must not linger here a moment," he said to his wife. "Hungry though I am, I will not eat my food here. We must both hurry home at once. You have taken and eaten fruit belonging to the Were-Tiger, so much feared by all. It is said that whoever touches his fruit will surely die a terrible death: and you are the first person I know who has done so."

*Danjai* hurriedly gathered together all his tools and told those that were with him of his trouble, and they all started and walked silently back. *Danjai* was wondering how he was to

avert the fate which awaited his young wife. She was silent, because she saw her husband was troubled, and she was sorry that she had caused him grief.

As soon as they arrived at the house, *Danjai* sent for all the men round about and told them what had happened, how his wife had taken and eaten the fruit of the Were-Tiger. He begged them all to help to shield her, for the Were-Tiger was sure to have his revenge, and come and take the head of his wife.

So they all prepared themselves for the tiger's visit by sharpening their knives and spears. Some men placed themselves on the roof of the house, others in the verandah. The ladder leading up to the house was also guarded, and so were all parts of the house by which he was likely to force an entrance. As for *Danjai's* wife, they hid her beneath some mats and sheets in the room, and twelve brave men stood round her with their swords drawn, ready to save her life even at the cost of their own.

Just before dark they heard the roar of the tiger in the distance. Though still a long way off, the sound was very terrible to hear, and the men all grasped their swords and spears firmly, for they knew the tiger would soon be upon them.

Once more the tiger's roar sounded, nearer and clearer, and then they heard him crash through the leaf thatch roof and fall into the room. There was a great commotion among the men, but though all tried to kill the animal, none could see him. Soon after they heard a roar of triumph from the tiger outside the house. They lifted up the mats and sheets which covered *Danjai's* wife, and there they saw her headless body! The Were-Tiger had succeeded in his attack, and had carried off the head of his victim!

Loud was the weeping and great the lamentation over her dead body. She was so young to die! And what death could be more terrible than hers whose head had been carried away by her murderer! All in the house mourned her loss for seven days and during that time the house was very quiet, as all lived in their separate rooms, and did not come out into the common verandah to do work or to talk to each other.

The death of his wife grieved *Danjai* very much. But though his grief was great, his desire for revenge was greater still.

Very early on the morning of the next day, *Danjai* started after the tiger. The drops of blood which had fallen could plainly be seen on the ground, and he had no difficulty in finding out in what direction the tiger had gone. On and on he tracked the blood till he came to a cave at the foot of a high mountain. The sides of the cave were splashed with blood, so *Danjai* walked boldly in, determined to revenge the death of his wife. It was not very dark in the cave. In the distance he could see an opening and he hurried towards it.

He came out on the other side of the mountain, and saw a large plantation of sugar-cane and plantain trees. Beyond this he saw a long Dyak house.

"This," he said to himself, "is surely the abode of the Were-Tiger, and soon I shall have an opportunity of revenging the death of my wife."

He planted two sticks across one another in the ground to mark the opening in the mountain, so that he might not miss his way on his return, and then he boldly walked towards the house.

He followed a path through the sugar-cane plantation—still tracking the drops of blood upon the ground—until he came to the ladder leading up to the house. He was so anxious to attack his wife's murderer, that he did not pause to ask—as is the usual Dyak custom—whether he might walk up or not, but went straight on into the house. Men sitting in the verandah asked him, as he passed them, where he was going and what he wanted, but he did not answer them. His heart was heavy within him, thinking of his dead wife, and wondering whether he would be able to accomplish his task, and whether he would succeed in leaving the house as easily as he came in. But he was determined to avenge his wife's murder, and he would not shrink from any difficulties in the way.

He stopped at the room of the head of the house, and a girl asked him to sit down, and spread a mat for him. He did so, and the girl went into the room to fetch the brass vessel containing the betelnut ingredients which the Dyaks love to chew. As he sat down, he saw drops of blood on the fire-place, and looking up he noticed a fresh head, still dripping with blood, among the other skulls hanging there. He recognised it at a glance—it was the head of his loved wife!!

The girl came out with the brass vessel of betelnut and said: "Help yourself *Danjai*. We did not expect you to visit us so soon. Please excuse me for a little while, I have to attend to the cooking. But you will not be alone for my brother will soon be back. He has only gone to the plantation to fetch some sugar-cane."

So Danjai sat on the mat by himself, thinking what he was to do next and what he was to say to his wife's murderer when he came in. Soon the Were-Tiger arrived, carrying on his shoulder a bundle of sugar-cane.

"I am very pleased to see you *Danjai*," he said, "would you like some sugar-cane? If so, help yourself."

*Danjai* was so sad thinking of his wife, that he did not notice how curious it was, that they should know his name when they had never seen him before. He did not feel at all inclined to eat sugar-cane, but lest his host should think he had come to kill, and to put him off his guard, he pretended to eat a little. He heard the Were-Tiger say to his sister in the room, that she was to be sure to have enough food cooked, as *Danjai* would eat with them that evening. Then he left them and went to the river to bathe.

The sister came out of the room, and spoke to *Danjai*, who was still sitting in the verandah, and asked him to come into the room as she had something to say to him.

"Yes, *Danjai*," she said to him in a kind tone of voice, "I know of your trouble and I am sorry for you. However, if you follow my advice, all will be well. You must be careful, for my brother is easily put out, and has no scruples about killing any who displease him. Even our own people here hate him, for he is so merciless; but no one dare attack him, for all fear him greatly. Now listen attentively to what I have to say. When I put out the plates of rice in the room presently, do not take the one he tells you to have: take any of the others, for the one he wishes you to have is sure to contain some poison. Later on, when you retire to rest, do not spend the night on the mat spread out for you, but sleep somewhere else, and put the wooden mortar for pounding paddy on the mat in your stead: and so again on the second night, place the wooden mill for husking the paddy on your mat: and on the third night a roll of

the coarse matting used for treading paddy. If his three attempts to kill you are unsuccessful, then he will be in your power and will do what you command. But even then there is still danger, and you must not do anything rash, but ask my advice again later on. But go outside now into the verandah, for I think I hear my brother returning from his bath. I must make haste and put out the food for you all to eat."

Soon the Were-Tiger came in and sitting on the mat by *Danjai* asked him the news and how matters were in his country. *Danjai* answered little for he was very sad, besides his host always laughed at him whenever he spoke. The fact was that he was amused at the idea of the man, whose wife he had killed, sitting in his verandah and talking to him in a friendly way.

The sister came out of the room and asked them in to have their meal. All happened as she said it would. *Danjai* remembered her advice and did not take the plate of rice his host offered him. But he was too sad to eat.

In the evening *Danjai* and the Were-Tiger sat by a fire in the verandah. Over this fire hung several human heads. The tears came into *Danjai's* eyes as he sat there and saw the head of his dear wife being scorched by the fire. He felt inclined there and then to grasp his sword and attack the murderer of his wife; but he restrained himself remembering the advice of the Tiger's sister.

The Were-Tiger said to him with a nasty laugh, "What is troubling you that you should weep?"

"I am not troubled about anything," said *Danjai*, "but the smoke of the fire is too much for my eyes, and it makes them water and feel sore."

"If so," said his host, "let us put out the fire and retire to rest, as it is very late."

Two mats were spread out for them, one on each side of the fire-place, and they lay down to sleep. But *Danjai* kept awake, and when his companion was asleep, he rose and placed the wooden mortar for pounding paddy on his mat, and covered it over with a sheet; and he himself retired to a safe place as he was advised to do by the Tiger's sister. He watched to see what would happen and he was not disappointed. Not long after, he saw the Were-Tiger wake up and fetch a sword, and walk

up to the place where he was supposed to be asleep. With the sword he made two or three vicious cuts at the wooden mortar and said:

"Now *Danjai*, this will settle you. You will not think of revenging yourself on me any more."

Then *Danjai* cried out from where he was, "What is the matter? What are you doing?"

"Oh *Danjai!* Is that you?" said his host, "I did not mean to hurt you. I had a bad dream, and I sometimes walk in my sleep. How lucky it is you were not lying on the mat! I should have certainly killed you, and I should never have forgiven myself for doing so. Please understand I meant no harm to you, and let us lie down to rest again."

On the two following nights the Were-Tiger attempted to kill *Danjai*, but failed each time, because following the advice given him, *Danjai* placed first the wooden mill for husking the paddy on his mat, and next a roll of coarse matting used for treading paddy. His host made the same excuse for his strange behaviour each time.

On the morning of the fourth day, after the Were-Tiger had left the house to see whether any fish had been caught in his fish trap, his sister asked *Danjai* to come into the room as she had something to say to him before he left to return home.

"Now *Danjai*," she said, "as I told you before, since my brother has not been able to kill you these three days, he is in your power. After breakfast ask him to accompany you and show you the way back to your country. When you have both come to the further end of the sugar-cane plantation, ask him to sit down for a little while, and say you would like to eat some sugar-cane, before you leave him and go on your journey alone. When he gives you the sugar-cane, ask him to lend you his sword, giving as an excuse that yours is not sharp enough for peeling the sugar-cane, or that it is stuck fast in its sheath and cannot be drawn. When he hands you his sword, you must attack him with it and kill him. My brother is invulnerable to any other sword but his own. When you have killed him, cut off his head and bring it to me, and I will give you your wife's head in exchange for it. On no account are you to take his head away with you. If you do so, I will follow you to your country and take my revenge."

A few minutes after this conversation, the Were-Tiger returned with a basket full of fish. Some of these were soon cooked, and they sat down to breakfast.

Soon after they had eaten, *Danjai* told his host that he must be returning to his own country, and asked him to accompany him and show him his way back. So they started together and walked through the sugar-cane plantation.

Just as they came near the end of it, *Danjai* asked his companion to stop. He said he would like to have some sugar-cane before going on.

"I am sorry I did not offer you any," said the Were-Tiger: "it was very forgetful of me. Never mind, I will at once cut down some sugar-cane for us."

When he had brought the sugar-cane and had finished peeling the piece he wanted for himself, *Danjai* said to him,

"Please lend me your sword, for mine is stuck fast in its sheath and I cannot draw it out."

The Were-Tiger suspecting nothing, handed the sword to him, and *Danjai* began peeling his sugar-cane.

Just then the Were-Tiger turned round to look at his house, and *Danjai* seizing his opportunity, gave him a blow with the sword in his hand and killed him. Then he cut off the head and carried it back with him to the house he had just left.

When he came near, he saw the sister watching for his return, and standing at the top of the ladder leading up to the house. He followed her into the house, and gave her the head of her brother.

"You ought to be quite satisfied now, *Danjai*," she said, "for you have killed my brother, and have taken your revenge for the death of your wife. I want you to promise me certain things before you go. First of all, you must not let anybody know that you have killed my brother. Next, on your return, you must go on the war-path and bring back to me the head of a woman, to enable me to put away the mourning of myself and my relatives, for the death of my brother. And when you return, I hope you will take me with you to be your comforter in the place of your dead wife: so that I may have some one to care for me, now that my brother is dead. And I give you now some locks of my hair, to be used as a charm to

make you invisible to the enemy, when you are on the warpath. Lastly, I advise you and your people, never to eat or to take away any fruit you may find lying about in the jungle, on the stump of a tree, or on a rock, without knowing for certain who put it there and to whom it belongs, or making sure that it has fallen from some tree near. This must be remembered from generation to generation. Whoever disobeys this advice will be punished either by death, as in the case of your wife, or in some other dreadful way. You may now have the head of your wife to take back to your country; and as you may have forgotten the way, I will send one of my slaves with you, to show you in what direction you are to go."

As she finished speaking, she handed him his wife's head, and *Danjai* started off at once for he was anxious to get back.

He reached his house late that same evening. All his friends were glad to see him come back safe and sound. They had given up all hope of seeing him again. They were also pleased to see he had been successful in bringing back the head of his dead wife.

Soon after *Danjai's* return from the Were-Tiger's country he gathered all his followers together and told them that he intended going on the war-path. As soon as they were able to get everything ready, they started for the enemy's country. They were very successful and succeeded in taking many heads; but *Danjai*, protected as he was by the charm which he had received from the Were-Tiger's sister, was more successful than the others. They returned with much rejoicing, and a great feast was held in honor of their victory. The human heads were placed on a costly dish, and the women carried them into the house, with dancing and singing.

A few days after, *Danjai* started to fulfil his promise to the Were-Tiger's sister. He brought her back with him as his wife, and they lived very happily together for many years.

This story explains why the Dyaks, even at the present day, dare not eat any fruit they may find lying on the stump of a tree, or on a rock in the jungle. They fear that evil will happen to them, as it did to *Danjai's* wife.

## II.

## The Story of Siu,

### Who first taught the Dyaks to plant Paddy and to observe the Omens of Birds.

Many thousands of years ago before the Paddy plant was known, the Dyaks lived on tapioca, yams, potatoes and such fruit as they could procure. It was not till *Siu* taught them how to plant Paddy that such a thing as rice was known. The story of how he came to learn of the existence of this important article of food, and how he and his son *Seragunting* introduced it among their people is here set forth.

*Siu* was the son of a great Dyak chief, but his father died when he was quite a child, and at the time this story begins, he lived with his mother and was the head of a long Dyak house in which lived some three hundred families. He was strong and active and handsome in appearance, and there was no one in the country round who was equal to him in strength or comeliness. When he was ready to go on the warpath, he was the admiration of all the Dyak damsels. On such occasions he appeared in a many coloured waistcloth, twelve fathoms in length, which was wound round and round his body. On his head was a plaited rattan band in which were stuck some long feathers of the hornbill. His coat was woven of threads of bright colours. On each well-shaped arm was an armlet of ivory. To his belt was fastened his sword and the many charms and amulets that he possessed. With his spear in his right hand and his shield on his left arm, he presented a splendid type of a Dyak Warrior. But not of his bravery nor of his deeds of valour against the enemy does this tale relate. It only gives an account of an adventure of his which ended in his discovery of Paddy.

One day *Siu* proposed to the young men of his house that they should take their blowpipes with them and go into the jungle to shoot birds. So one morning they all started early. Each man had with him his bundle of food for the day, and each went a different way, as they wished to see, on returning in the evening, who would be the most successful of them all.

*Siu* went towards a mountain not far from his house. He wandered about the whole morning in the jungle, but strange to

say, he did not see any bird nor did he meet with any animal. Everything was very quiet and still. Worn out with fatigue, he sat down to rest under a large tree, and feeling hungry, he ate some of the food he had brought with him. It was now long past midday, and he had not been able to kill a single bird! Surely none of the others could be so unfortunate as he!

He determined not to be beaten by the others, and after a short rest, he started again and wandered on in quest of birds. The sun had gone half-way down in the western heaven, and he was beginning to lose heart, when suddenly he heard not far off the sound of birds. He hurried in that direction, and came to a large wild fig tree covered with ripe fruit, which a large number of birds were busy eating. Never before had he seen such a sight! On this one large tree, the whole feathered population of the forest seemed to have assembled together! On looking carefully, he was surprised to see that the different kinds of birds were not all intermingled together as is usually the case. Each species was apart from the others. Here he saw a large flock of wild pigeons on one branch, and next to them were the parrots, all feeding together but keeping distinct from them. Upon this tree there were hornbills, wood-peckers, wild pigeons and all the different kinds of birds he had ever seen.

He hid himself under the thick leaves of a shrub growing near, very much pleased at his luck. He took a poisoned dart and placed it in his blow-pipe, and taking good aim, shot it out. He had aimed at one bird in a particular flock, and he hit it. But that bird was not the only one that fell dead at his feet. To his astonishment, he saw that many of the other birds that were near it were killed also. Again he shot out a dart, and again the same thing happened. The bird that was hit fell down dead, and with it the birds that were near it. In a very short time, *Siu* had killed as many birds as he could carry. As the little basket, in which he had brought his food, was too small to hold them all, he set to work and made a large coarse basket with the bark of a *Pendok* tree growing near. Then he put his load on his back and started to return home, glad that he had been so successful.

He tried to follow the way by which he had come, but as he had not taken the precaution to cut marks in the trees he passed,

he very soon found himself in difficulties. He wandered about, sometimes passing by some large tree, which he seemed to remember seeing in the morning. He climbed up a steep hill and went several miles through a large forest, but did not find the jungle path which he had followed early in the day. It was beginning to grow dusk and the sun had nearly set.

"I must hurry on," said *Siu* to himself, "in the hope of finding some house where I can get food and shelter. Once it is dark, I shall be forced to spend the night in the jungle."

He hurried on and luckily came to a part of the jungle which had lately been a garden.

"There must be some path from this garden," said *Siu* to himself, "leading to some house;" and he began to walk round it.

He soon found an old disused path which he followed and which led him to another path. By this time it was quite dark, and *Siu* made haste to reach the Dyak house which he felt sure was not very far off. He soon came to a well, and not far off he saw the lights and heard the usual sounds of a Dyak house. He was glad to think that he would not have to spend the night in the jungle, but would be probably able to get food and shelter at the house.

He stopped to have a bath and hid the birds he was carrying and his blow-pipe and quiver in the brushwood near the well, hoping to take them with him when he started to return the next morning.

As he approached the house, he could hear the voices of the people there. When he came to the bottom of the ladder leading up to the house, he shouted, "Oh! you people in the house, will you allow a stranger to walk up?" At once there was dead silence in the house. No one answered. Again *Siu* asked the same question, and, after a pause, a voice answered, "yes: come up!"

He walked up into the house. To his surprise, he saw no one in the open verandah in front of the different rooms. That part of a Dyak house, usually so crowded, was quite empty. Nor did *Siu* hear the voices of people talking in any of the rooms. All was silent. Even the person who answered him was not there to receive him.

He saw a dim light in the verandah, further on, in the middle of the house, and he walked towards it. He wondered what could have happened to all the people in the house, for not long before he heard many voices.

"This seems to be a strange house," he said to himself. "When I was bathing and when I walked up to the house, it seemed to be well inhabited, but now that I come in, I see no one, and hear no voice."

When *Siu* reached the light, he sat down on a mat there. Presently he heard a woman's voice in the room say, "Sit down *Siu*: I will bring out the *pinang* and *sireh* to you."

*Siu* was very pleased to hear a human voice. Soon a young and remarkably beautiful girl came out of the room with the chewing ingredients, which she placed before him.

"Here you are at last, *Siu*," she said, "I expected you would come earlier. How is it you are so late?"

"I stopped a little while at the well to have a bath, as I was hot and tired."

"You must be very hungry as well," she said, "wait a moment while I prepare some food for you. After you have eaten we can have our talk together."

When *Siu* was left to himself, he wondered what it all meant. Here was a long Dyak house, built for more than a hundred families to live in, and yet it seemed quite deserted. The only person in it appeared to be the beautiful girl who was cooking his food for him. Then again, he wondered how it was she knew his name and expected him that day. All these things filled him with wonder and surprise.

"Come in, *Siu*," said the voice from the room, "your food is ready."

*Siu* was very hungry and went in at once, and sat down to eat his dinner.

When they had done eating, she cleared away the plates and put things back into their places and tidied the room. Then she spread out a new mat for him, and brought out the *pinang* and *sireh*, and bade him be seated, as she wished to have a chat with him.

*Siu* had many questions to ask, and as soon as they were both seated, he began:—

"Why are you all alone in this house? This is a long house, and many families must live in it; where are the others? Why is everything so silent now? I am sure I heard voices before I entered the house; but now I hear no sound."

"Do not let us talk about this house or the people in it for the present. I would much rather talk of other matters. Tell me of your own people, and what news you bring from your country."

"There is no news to give you," *Siu* replied. "We have been rather badly off for food, as our potatoes and yams did not turn out so well this year as we hoped."

"Tell me, what made you come in this direction and how it was you found out this house."

"While I was hunting in the jungle to-day, I lost my way. After wandering about a long time, I found a path which I followed and came to this house. It was kind of you to take me in and give me food. If I had not found this house, I must have died in the jungle. To-morrow morning I must ask you to show me the way to my country, and also I must beg of you some food for my journey back. My mother is sure to be anxious about me. She is left all alone, now that I am away. My father died a long time ago, and I am her only son."

"Do not go away as soon as to-morrow morning. Stay here a few days at any rate."

At first *Siu* would not consent, but she spoke so nicely to him that she succeeded in persuading him to stay there at least a week. Then he went out to the verandah, and she brought out a mat for him to sleep on and a sheet to cover himself with. As *Siu* was very tired, he soon fell sound asleep, and did not wake up till late on the following morning.

He saw some little children playing about the next day, but he did not see any grown up people. He went into the room to have his morning meal, but saw no one there, except the girl he had seen the evening before. He felt very much inclined to ask her again where the people of the house were, but he did not do so, as she did not seem inclined to speak about them.

Now though *Siu* knew it not, this was the house of the great *Singalang Burong*, the Ruler of the Spirit World. He was able to metamorphose himself and his followers into any

form. When going forth on an expedition against the enemy, he would transform himself and his followers into birds, so that they might travel more quickly. Over the high trees of the jungle, over the broad rivers, sometimes even across the sea *Singalang Burong* and his flock would fly. There was no trouble about food, for in the forests there were always some wild trees in fruit, and while assuming the form of birds, they lived on the food of birds. In his own house and among his own people *Singalang Burong* appeared as a man. He had eight daughters, and the girl who was cooking food for *Siu* was the youngest of them.

The reason why the people of the house were so quiet, and did not make their appearance, was because they were all in mourning for many of their relatives who had been killed some time back. Only the women and children were at home, because that same morning all the men had gone forth to make a raid upon some neighbouring tribe, so that they might bring home some human heads to enable them to end their mourning. For it was the custom that the people of a house continued to be in mourning for dead relatives, until one or more human heads were brought to the house. Then a feast was held, and all mourning was at an end.

After *Siu* had been in the house seven days, he thought he ought to think of returning to his own people. By this time he was very much in love with the girl who had been so kind to him, and he wished above all things to marry her, and take her back with him to his own country.

"I have been here a whole week," he said to her, "and though you have not told me your name, still I seem to know you very well. I have a request to make and I hope you will not be angry at what I say."

"Speak on; I promise I will not be angry whatever you may say."

"I have learnt to love you very much," said *Siu*, "and I would like to marry you if you will consent, so that I shall not leave you but take you with me, when I return to my own land. Also I wish you to tell me your name, and why this house is so silent, and where all the people belonging to it are."

"I will consent to marry you, for I also love you. But you must first promise me certain things. In the first place, you must not tell your people of this house and what you have seen here. Then also you must promise faithfully never to hurt a bird or even to hold one in your hands. If ever you break this promise, then we cease to be man and wife. And of course, you must never kill a bird, because if you do so, I shall not only leave you but revenge myself on you. Do you promise these things?"

"Yes" said *Siu*, "I promise not to speak of what I have seen here until you give me leave to do so. And as you do not wish it, I will never touch or handle a bird, and certainly never kill one."

"Now that you have promised what I wish, I will tell you about myself and the people of this house," said the maiden. "My name is *Endu-Sudan-Galinggam-Tinchin-Mas* (the girl Sudan painted like a gold ring), but my people call me by my pet names *Bunsu Burong* (the yougest of the bird family), and *Bunsu Katupong* (the youngest of the *Katupong* family). This house, as you noticed, seems very empty. The reason is that a month ago many of our people were killed by some of the people of your house, and we are all still in mourning for them. As you know, when our relatives have lately died, we stay silent in our rooms, and do not came out to receive visitors or to entertain them. Why are your people so cruel to us? They often kill our men when they go out fishing or hunting. On the morning of the day on which you arrived, all the men of this house went on the war-path, so as to obtain the heads of some of the enemy to enable us to put away our mourning. With us as with you it is necessary that one or more human heads be brought into the house, before the inmates can give up sorrowing for their dead relatives and friends. You see us now in the form of human beings, but all the people in this house are able to transform themselves into birds. My father *Singalang Burong* is the head of this house. I am the youngest of eight sisters: we have no brother alive. Our only brother died not long ago, and we are still in mourning for him, and that was the reason why my sisters did not come out to greet you."

*Siu* heard with surprise all she had to say. He said to himself that it was lucky he did not bring up to the house the

basket of birds which he had killed in the jungle, and that he had hidden them with his blow-pipe and quiver containing poisoned darts, in the brushwood near the well. He determined to say nothing about the matter, as probably some of her friends or relations were among the birds that were killed by him.

So *Siu* married *Bunsu Burong* and continued to live in the house for several weeks.

One day he said to his wife:—"I have been here a long time. My people must surely be wondering where I am, and whether I am still alive. My mother too must be very anxious about me. I should like to return to my people, and I want you to accompany me. My mother and my friends are sure to welcome you as my wife."

"Oh yes: I will gladly accompany you back to your home. But you must remember and say nothing of the things you have seen in this house. When shall we start?"

"We can start early to-morrow morning, soon after breakfast," answered *Siu*.

They started early the next day, taking with them food enough for four days, as they expected the journey would last as long as that. *Siu's* wife seemed to know the way, and after journeying for three days, they came to the stream near the house, and they stopped to have a bath. Some of the children of the house saw them there, and ran up to the house and said:—"*Siu* has come back, and with him is a beautiful woman, who seems to be his wife."

Some of the older people checked the children, saying:—"It cannot be *Siu*: he has been dead for a long time. Don't mention his name, for if his mother hears you talk of him, it will make her very unhappy."

But the children persisted in saying that it was indeed *Siu* that they had seen. Just then *Siu* and his wife appeared, and walked up to the house.

*Siu* said to his wife:—"The door before which I hang up my sword is the door of my room. Walk straight in. You will find my mother there, and she will be sure to be glad to welcome you as her daughter-in-law."

When they came into the house, all the inmates rushed out to meet them, and to congratulate *Siu* on his safe return.

They asked him many questions:—where had he been living all this time; how he came to be married, and what was the name of his wife's country. But *Siu* answered little, as he remembered the promise he had made to his wife, that he would not speak of what he had seen in her house.

When they reached the door of his room, *Siu* hung up his sword and his wife went into the room. But she did not see his mother as she was ill and was lying in her curtain. Then *Siu* followed his wife into the room and called out "Mother, where are you? Her is your son *Siu* come back!"

But his mother made no answer, so he opened her curtain, and saw her lying down, covered up with a blanket. She had been so troubled at the thought that her son was dead, that she had refused to eat and had become quite ill.

She would not believe that her son had really returned alive, and she said, "Do not try to deceive me; my son *Siu* is dead."

"I am indeed your son *Siu*, and I have come back alive and well!"

"No!" she replied, "my son *Siu* is dead. Leave me alone, I have not long to live. Let me die in peace and follow my son to the grave."

*Siu* then went to the box in which his clothes were kept, and put on the things that his mother had often seen him wear. Then he went to her again and said, "Even if you do not believe that I am your son, at any rate you might turn round and look at me, to make sure that I am not your son."

Then she looked at him, and saw that it was indeed her son. She was so pleased at his return that she soon recovered from her illness, which was really caused by her sorrow and refusal to eat. *Siu* told his mother of his marriage, and she welcomed his wife with joy.

The women all crowded round *Siu's* wife and asked her what her name was. She answered *Endu-Sudan-Galingam-Tinchin-Mas.* (The girl Sudan painted like a gold ring). They looked at her in surprise; they had never heard of such a name before.

"Where do you come from?" they asked. "What is the name of your country?"

"*Nanga Niga Bekurong Bebali ngadi Tekuyong Mabong,*" (The mouth of the hidden Niga stream changed into the Mabong snail),* was the reply.

They were astonished at her answer! They had never heard of such a country. They asked her of her people, but she would not say anything more of herself or speak about her people.

Everybody admired the great beauty of *Siu's* wife. No more questions were asked of her, as she seemed unwilling to answer. Her parentage remained a mystery.

In process of time *Siu's* wife bore him a son whom they named *Seragunting*. He was a fine child, and as befitted the grandson of *Singalang Burong*, he grew big and strong in a miraculously short time, and when he was three years old, he was taller and stronger than others four times his age.

One day as *Seragunting* was playing with the other boys, a man brought up some birds which he had caught in a trap. As he walked through the house, he passed *Siu* who was sitting in the open verandah. *Siu* forgetting the promise he had made to his wife asked him to show him the birds, and he took one in his hands and stroked it. His wife was sitting not far off, and saw him hold the bird and was very much vexed that he had broken his promise to her.

She get up and returned to her room. *Siu* came in and noticed that she was troubled and asked her what was wrong. She said that she was only tired.

She said to herself:—"My husband has broken his word to me. He was done the thing he promised me he would never do. I told him he was never to hold a bird in his hands, and that if he did such a thing, I would leave him. I cannot stay here in this house any longer. I must return to the house of my father *Singalang Burong*."

She took the water vessels in her hands, and went out as if to fetch water. But when she came to the well, she placed the water vessels on the ground, and disappeared in the jungle.

In the meantime *Seragunting*, tired with his play came back in search of his mother. She was very fond indeed of him, and

*The Dyaks are fond of rhyming names, which often have no Special meaning.

he expected her to come to him as soon as he called out to her. But he was disappointed. No one answered his call, and when he looked in the room, she was not there. He asked his father where his mother was, and he told him that she had just gone to the well to fetch water and would soon be back.

But hour after hour passed, and she did not return to the house. So *Seragunting* began to be anxious, and asked his father to accompany him to the well to look for her. At first his father refused to do so, but when he saw his son crying for his mother, he went with him to the well. They found the water vessels there, but saw no signs of her.

"Your mother is not here, *Seragunting*," said *Siu*. "Perhaps she has gone to the garden to get some vegetables for our dinner. Let us go back to the house. If your mother is not back, early to-morrow morning, we will go and look for her." So they both returned to the house, taking back with them the water gourds which *Siu's* wife had left at the well.

Early the next morning, *Seragunting* and his father went in search of her. They took with them only a little food, as they expected to find her not very far off. But they wandered the whole day and saw no signs of her. They spent the night under a large tree in the jungle. Early the next morning, they were surprised to find a small bundle of food, wrapped up in leaves, near *Seragunting*. This food was evidently meant for him alone, as it was not enough for two, but he gave some of it to his father, who ate sparingly of it, so that his son might not be hungry. They wandered on for several days, and every night the same strange thing occurred—a bundle of food was left near *Seragunting*. *Siu* suggested to his son that they should return; but *Seragunting*, who during the journey had grown up into a strong lad with a will of his own, would not consent to do so, as he was determined to find his mother.

They wandered on for several days, deeper and deeper into the jungle; but could find no signs of her whom they sought. At last they came to the sea-shore. Here they rested for some days, in the hope that some boat might pass. Still, as before, each morning a bundle of food was found by *Seragunting*. If it were not for this food, they would have long ago died of starvation. On this food they managed to live, waiting

hopefully to see some boat appear to take them on their journey.

One day as *Seragunting* was watching, he heard the sound of paddles, and saw in the distance several long boats approaching. He hailed the first, and asked the men in it to take him and his father with them. The boat made for the shore, but the man in the bows recognised the two wanderers, and shouted out:—"It is *Siu* and his son *Seragunting*: do not let them come into the boat." The boat went on and left them to their fate. The same thing happened in the case of each of the other boats. As soon as *Siu* and his son were recognised, no one would help them.

Now these were the boats of the sons-in-law of *Singalang Burong*:—*Katupong*, *Beragai*, *Bejampong*, *Papau*, *Nendak*, *Pangkas*, and *Embuas*. They were not pleased at their sister-in-law marrying a mere mortal like *Siu*, and so refused to help him and his son.

The next day *Seragunting* saw what seemed to be a dark cloud come towards him over the sea. As it came nearer, it took the form of a gigantic spider, carrying some food and clothes.

"Do not be afraid," said the Spider, "I have come to help you and your father. I have brought you food and clothing. When you have had some food and changed your clothes, I will take you across the water to the land on the other side. My name is *Emplawa Jawa* (the Spider of Java). I know your history, and I will lead you to your mother whom you seek."

After they had eaten and put on the new clothes brought them, the spider told them to go with him across the sea. They were not to be afraid, but to follow his track, not turning to the right hand nor to the left. They obeyed his words. Strange to say, the water become as hard as a sandbank under their feet. For a long time they were out of sight of land, but towards evening they approached the opposite shore, and saw a landing place where there were a large number of boats. Not far off where several houses, and one longer and more imposing than any of the others. To this house the Spider directed *Seragunting*, telling him that he would find his mother there. The Spider then left them. As it was late, they did not go up to

the house that evening, but spent the night in one of the boats at the landing place. Among the boats were those belonging to the Sons-in-law of *Singalang Burong* which had passed *Sin* and his son as they waited on the sea-shore for some boat to take them across the sea.

When *Seragunting* and his father woke up next morning, they saw that the road leading up to the house had sharpened pieces of bamboo planted close together in the path, to prevent their walking up it. As they were wondering what they were to do next, a fly came to *Seragunting* and said:—

"Do not be afraid to walk up. Tread on the spikes that I alight on; they will not hurt you. When you come to the house you will find swords with blades turned upwards fastened to the ladder. Tread on the blades that I alight on and walk boldly up into the house."

They did as the fly advised them, and were not hurt. The bamboo spikes crumbled under their feet, and sword blades they trod on were blunt and harmless.

The people of the house took no notice of them, and they sat down in the verandah of the house. Then the fly came to *Seragunting* and whispered to him:—"You must now follow me into the room. Your mother is there, lying in her curtain. I will point out to you which it is, and you must wake her up and tell her who you are. She will be very pleased to see you. Then when you come out into the verandah and see the sons-in-law of *Singalang Burong*, you must greet them as your uncles. They will disown you and pretend that you are no relation of theirs. But do not be afraid. You will be victorious in the end."

*Seragunting* followed the fly into the room and went to the curtain on which it alighted. He called out to his mother, and she awoke and saw with joy her son. She embraced him, and he said to her:—

"How is it you went away and left us? We missed you so much, and were so sorry to lose you, that my father and I have been travelling for many days and nights in search of you. Now our troubles are over for I have found you."

"My dear son," she said as she carressed him, "though I left you I did not forget you. It was I who placed the food by you

every night. I left your father because he broke the promise he made to me. But you are my own son, and I have been wishing to see you, ever since I left your house. It was I who sent the Spider to help you and show you your way here. My love for you is as great as it ever was. We will go out now into the verandah, and I will introduce you to your uncles and aunts and to your grandfather. They may not welcome you, because they were opposed to my marriage to your father. But do not be afraid of them. We will be more than a match for them all."

Then she spoke to her husband *Siu*, whom she was glad to meet again. All three then went out into the verandah, which was now full of people. *Seragunting* called the sons-in-law of *Singalang Burong* his uncles, but they refused to acknowledge that he was their nephew.

They proposed several ordeals to prove the truth of his words, that he was indeed the grandson of *Singalang Burong*. In all of these *Seragunting* came off victorious.

As the men and boys were spinning their tops, they asked *Seragunting* to join them. He had no top of his own, so he asked his mother for one. She took an egg and uttered some mysterious words over it, and immediately it became a top. This she gave to her son, who went and joined the others in the game. Whenever *Seragunting* aimed at a top, he always hit it and smashed it in pieces. None of the others were a match for him. In a short time, all the tops except that of *Seragunting* were broken in pieces.

Then they suggested a wrestling match. *Seragunting* was quite ready to try a fall with any of them, old or young. Some of their best wrestlers came forward. The first two were overthrown so easily by him, that the others saw it was no use their attempting to wrestle with *Seragunting*.

As a last trial they proposed that all should go out hunting. Here they hoped to be more fortunate. All the sons-in-law of *Singalang Burong* took their good hunting dogs with them, confident of success. *Seragunting* was told that he could have any of the other dogs left in the house. There he saw a few old dogs, weak and useless for hunting. With these he was expected to compete against the others, and if he was not successful, both he and his father were to be killed! *Seragunting*

consented even to such an unfair ordeal as that. He called to him an old sickly looking dog, and gently stroked it. At once it became young and strong! While the others went forth into the jungle with a pack of hounds, *Seragunting* was only accompanied by one dog. In the evening *Katupong*, *Beragai*, *Bejampong* and the others all returned unsuccessful. Soon after, *Seragunting's* dog appeared chasing a huge boar which made a stand at the foot of the ladder of the house. *Seragunting* asked the others to kill the beast if they dared. The spears cast at it glided off, and left the beast unharmed. Some of those who were rash enough to go near the animal, had a close escape from being torn in pieces by its tusks.

*Seragunting* armed with nothing better than a little knife belonging to his mother, walked up to the infuriated animal, and stabbed it in a vital part, and it fell down dead at his feet.

After these marvellous feats, all were compelled to admit that *Seragunting* was a true grandson of the great *Singalang Burong*. They all acknowledged him as such, and he was taken to his grand-father, who was pleased to see the lad and promised to help him throughout his life.

But *Siu* was unhappy in his new home. He could not help thinking of his mother whom he had left alone, and he was anxious to return to his own people. He begged his wife to accompany him back to his old home, but she refused to do so. It was decided that *Siu* and his son should stay in the house of *Singalang Burong* till they had obtained such knowledge as would be useful to them in the future, and that then they were to return to the lower world, bringing with them the secrets they had learnt from those wiser and more powerful than themselves.

All the people of the house were now most kind to *Siu* and his son, and were most anxious to teach them all they could. They were taken on a war expedition against the enemy, so they might learn the science and art of Dyak warfare. They were taught how to set traps to catch deer and wild pig. They were shown the different methods of catching fish, and learnt to make the different kinds of fish-trap used by the Dyaks of the present day. They remained in *Singalang Burong's* house that whole year, so that they might have a complete

and practical knowledge of the different stages of paddy growing.

When the year was ended, *Seragunting's* mother took him and *Siu* to see her father, *Singalang Burong*, so that they might receive from him his advice, as well as such charms as he might wish to give them before they left to return to the lower world of mortals.

*Singalang Burong* was sitting in his chair of state, and received them most kindly when they came to him. He bade them be seated on the mat at his feet, as he had many things to say to them. Then he explained to *Siu* and his son who he was, and the worship due to him, and they learnt also about the observance of omens, both good and bad.

"I am the Ruler of the Spirit World," said *Singalang Burong*, "and have the power to make men successful in all they undertake. At all times, if you wish for my help, you must call upon me and make offerings to me. Especially must this be done before you go to fight against the enemy, for I am the God of War and help those who pay me due respect."

"You have learnt here how to plant paddy. I will give you some paddy to take away with you, and when you get back to your own country, you can teach men how to cultivate it. You will find rice a much more strengthening article of food than the yams and potatoes you used to live upon, and you will became a strong and hardy race.

"And to help you in your daily work, my sons-in-law will aways tell you whether that you do is right or wrong. In every work that you undertake, you must pay heed to the voices of the sacred birds:—*Katupong*, *Beragai*, *Bejampong*, *Papau*, *Nendak*, *Pangkas*, *and Embuas*. These birds, named after my sons-in-law, represent them and are the means by which I make known my wishes to mankind. When you hear them, remember it is myself speaking through my sons-in-law for encouragement or for warning. Whatever work you may be engaged in—farm work, house-building, fishing or hunting—wherever you may be you must always do as these birds direct. Whenever you have a feast, you must make an offering to me, and you must call upon my sons-in-law to come and partake of the feast. If you do not do these things, some evil is sure to happen to you. I

am willing to help you and to give you prosperity, but I expect due respect to be paid to me, and will not allow my commands to be disobeyed."

Then *Singalang Burong* presented them with many charms to take away with them. These were of various kinds. Some had the power to make the owner brave and fortunate in war. Others were to preserve him in good health, or to make him successful in his paddy planting and cause him to have good harvests.

*Siu* and *Seragunting* then bade their friends farewell, and started to return. As soon as they had descended the ladder of the house of *Singalang Burong*, they were swiftly transported through the air by some mysterious power, and in a moment they found themselves at the bathing place of their own house.

Their friends crowded round them, glad to see them back, safe and well. They were taken with much rejoicing to the house. Friends and neighbours were told of their return, and a great meeting was held that evening. All gathered round the two adventurers, who told them of their strange experiences in the far country of the Spirit Birds. The charms received from *Singalang Burong* were handed round for general admiration. The new seed paddy was produced, and the good qualities of Rice as an article of food explained. The people congregated there had never seen paddy before, but all determined to be guided by *Siu* and *Seragunting*, and to plant it in future. The different names of the Sacred Birds were told to the assembled people, and all were warned to pay due respect to their cries.

And so, according to the ancient legend, ended the old primitive life of the Dyak, when he lived upon such poor food as the fruits of the jungle, and any yams and potatoes he happened to plant near his house; the old blind existence, in which there was nothing to guide him; and then began his new life, in which he advanced forward a step, and learnt to have regularly, year by year, his seed-time and harvest, and to know that there were unseen powers ruling the Universe, whose will might be learnt by mankind, and obedience to whom would bring success and happiness.

## Note.

On receiving the above legends from Mr. Gomes I pointed out to him the curious fact that in the first legend the tiger—a beast quite unknown in Borneo—plays a prominent part, and suggested that this story may have been of Malay origin. He replies by referring to A. H. Everett's paper on the Tiger in Borneo, in Journal 5, p. 157, and says "the 'Tree-tiger' *Felis marmorata* is common enough. The Dyaks call it by a distinctive name 'Kemaung dau' or 'Kemaung raras' (dau and raras both being words meaning the branch of a tree). These would lead one to suppose that at one time they knew of some other species they called simply 'Kemaung.'" Everett refers to traditions of the animal also, among the Sea Dyaks. One may compare these traditions of an animal apparently absent from the country with those of the Mias (Mawas) of the Malay peninsula.

*H. N. Ridley.*

# New Malayan Plants.

By H. N. RIDLEY.

The following plants apparently undescribed have turned up lately in various collections made in the Peninsula.

SCITAMINEÆ.

*Zingiber Wrayii*, Prain mss. A slender plant over a foot tall. Leaves elliptic, lanceolate, glabrous, 9 inches long, 3 inches wide, narrowed at the base but not petioled. Peduncle 4 inches tall covered with large loose sheathing leaves, spike three inches long, ovoid obconic. Bracts thin elliptic 1½ inch long ½ inch wide or less. Flowers solitary yellow. Bracteole spathaceous, lip spotted and marked with purple. Anther narrow linear, beak half an inch long.

Upper Perak at 300 feet elevation (Wray 3735). The only specimen I have seen is in poor condition but it seems a distinct plant from any described, from its rounded head of thin bracts, most of the allied species having cylindric spikes.

*Elettariopsis cyanescens*, n. sp. Rhizome ¼ inch through, violet inside, covered with dry sheaths, stems 18 inches tall, rather slender base, olivaceous. Leaves 8, lanceolate acuminate glabrous 6 inches long 1½ inches wide, hardly petiolate, ligule rounded short. Spike short, peduncle half an inch long covered with long dry lanceolate bracts 1½ inches long, flowers four. Ovary oblong pubescent ¼ inch long. Calyx tube 1½ inches long, pubescent at the base, apex long acuminate. Corolla tube narrow ½ inch longer pubescent, lobes oblong half an inch long ⅙ inch wide lip, oblong rounded 1 inch long. All white except the tip of the lip which is blue. Stamen oblong, crest moderately large, stigma large cup-shaped with pubescent edges.

This pretty species was collected by Mr. W. G. Napier on banks at Bukit Tanga, Séremban; it is nearly allied to *E. pubescens* but has much shorter flower spikes and quite glabrous leaves. The flowers when bruised became of a blue color, perhaps containing indigo.

ORCHIDEÆ.

*Dendrobium mellitum*, n. sp. A very small epiphytic plant, stems few 4 or 5 inches long, very slender above the lowest two or three joints, swollen a little for ¾ inch length. Leaves few terete subulate, 3 inches long $\frac{1}{16}$ inch thick. Flower solitary subterminal, from a short raceme, with small bracts. Pedicel and ovary ⅛ inch long thick yellow. Upper sepal ovate ¼ inch long, lateral sepals ovate falcate obtuse, mentum short broad and blunt. Petals narrower and shorter, all yellow. Lip three-lobed, lobes broad short curved tips rounded yellow veined with pink inside, midlobe oblong truncate, edged minutely laciniate veins and a patch in the centre pink, three parallel raised veins white on the disc. Anther oblong hemispheric brown, column face flat stained pink.

Johore, at Castlewood on the Sungei Tebrau, May 1903, I found a single plant of this very weak slender little orchid on a tree, and flowered it in the Botanic Gardens. It is allied to *D. clavator*, Ridley, a native of Perak, but has the base of the stem much less swollen, and an entirely different lip. Considering the size of the flower, half an inch across, it was wonderfully strongly scented of honey.

*Thrixspermum crassifolium*, n. sp. An epiphyte on coffee bushes, stem 6 inches tall, thick, leaves close set, thick leathery oblong obtuse, tip rounded, 4 inches long 1½ inches thick, sheaths under half an inch long purple, scapes 3 to 5 inches long stiff, base purple, raceme 1½ to 4 inches long flattened. Bracts distichous ¼ inch long close set, ovary and pedicel ¼ inch long. Sepals linear caudate from a broader base ¾ inch long, petals narrower linear caudate, all bright pellow. Lip ¼ inch long, pubescent orange

passing into cherry red at the tip. Spur saccate blunt, side lobes arched blunt, middle fleshy blunt ovate. Callus on the disc tongue-shaped rounded depressed in the centre, column white with rounded and broad wings. Anther hemispheric. Fruit linear angled, 3 inches long $\frac{1}{4}$ inch through.

On old coffee bushes at Castlewood, Johore. This is allied to *Th. Arachnites* which was common in the same place, but has the short stout leaves and stem of *Th. Scortechinii*. The flowers however are much smaller than any other of this group.

AMARYLLIDEÆ.

*Curculigo megacarpa*, n. sp. A large tufted plant with a stout stem. Leaves dark green oblong lanceolate acuminate glabrous 20 inches long, 3 inches wide, petiole 8 inches long. Peduncle 4 inches long tomentose with large lanceolate acuminate bracts at the base, lower ones hairy on the edge only, upper ones more hairy. Spike broad conic-cylindric 2 to 4 inches long. Flower 1 inch across. Sepals lanceolate acute $\frac{1}{2}$ inch long dirty yellow outside and hairy at the tip. Petals bright yellow, stamens yellow, filaments short, anthers oblong, wavy, hairy, beaked. Fruit 2 inches long, Indian-club shaped $\frac{3}{8}$ inch through at the base, white seeds very numerous angled ribbed black.

Perak, in forests on the Thaiping Hills at 2000 to 3000 feet elevation.

This seems to be common on the Thaiping Hills and has probably been hitherto overlooked or taken for a form of *C. latifolia*, but it can hardly be referred to that species, variable as it is. It is larger in all parts of the flower and fruit, the latter being very long club shaped.

BURMANNIACEÆ.

*Burmannia oblonga*, n. sp. A slender saprophyte 5 inches tall with numerous wiry roots. Stem sparingly or not at all branched. Leaves sheath-like, scales few and distant. Flowers one or two on the ends of the stem $\frac{3}{8}$ inch long and $\frac{1}{4}$ inch broad across the wings, tube narrow wings oblong with straight edges, angles rounded. Sepals and petals short blunt. Petals much the shorter.

Penang on rocks at 1500 to 2000 feet altitude (King's collector 2270.)

This plant should be sought again. It resembles the common *B. coelestis* in the form of its flowers, but is saprophytic. The very broad oblong wings of the perianth tube are very striking.

Since publishing the paper. on *Burmanniaceæ* in Journal 22, p. 332, I have been able to add to this group of plants:—*B. Championii*, Thwaites. A small ivory white plant like *B. tuberosa*, Becc., but more compact, with a short thick root stock covered with scales, from the Laba river in Selangor, and two additional species of *Thismia; Th. grandiflora*, Ridl., with rather large pink flowers collected by Lieut. Kelsall on the Sembrong river in Johor; and *Th. chrysops*, Ridl., a very pretty kind from Mount Ophir with pink and chocolate flowers with a yellow ring round the mouth of the tube; and *Bagnisia crocea* of Beccari, a very oddly shaped little brown species met with in the Perak Hills.

DIOSCOREACEÆ.

*Dioscorea tennifolia*, n. sp. Stems slender leaves mostly opposite thin glabrous elliptic cuspidate, base rounded 5 nerved 2 to 3 inches long an inch wide, petiole slender an inch long. Male panicle long and slender a foot or more, spikes slender one to three inches long, 3 or more in a whorl, rachis angled minutely pubescent. Flowers very small distant pubescent. Bracts shorter ovate. Sepals oblong ovate. Petals nearly as long oblong obtuse. Stamens 6, filaments fairly long.

Singapore on Bukit Timah (Ridley 4596.)

This wild yam is remarkable for its very thin leaves and slender stems. I have only met with a male plant but it seems very distinct from all other described species.

LILIACEÆ.

*Ophiopogon Malayanus*, n. sp. Stem erect stout 4 inches or more tall covered with the scarious sheaths of the fallen leaves and emitting long woody roots. Leaves linear acumi-

nate, falcate striate, glaucous beneath 9 inches long ⅜ inch wide. Scape 4 inches long base nude. Flowers small white. Bracts 2, bases broad ovate, tips linear, outer one ¼ inch long. Pedicel longer. Sepals and petals ovate subacute ⅛ inch long. Stamens connivent filaments very short, anthers lanceolate. Style terete longer.

Perak at Padang Rengas (W. Fox) Lankawi on Gunong Raya (Curtis 2643). The Ophiopogons are abundant in the mountainous regions of North India and China, but get very scanty further south, in fact this is the only one from the Peninsula except the little known and doubtful *O. prolifera* from Penang. Though perhaps as near the common and variable *O. intermedius* of India, it is very distinct in its tall stout stem, broad leaves and ovate petals and sepals.

*Tupistra violacea*, n. sp. Terrestrial stem short and stout, leaves broadly oblong oblanceolate acute narrowed gradually to the base, 3 feet long, 3 inches wide, dark green stiff, spike very dense about 8 inches high. Flowers sessile ½ inch across, tube hemispheric violet, lobes oblong recurved darker. Anthers 6 sessile elliptic. Style cylindric white, spotted with violet. Stigma club-shaped rounded obscurely three-lobed.

Perak, Bujong Malacca; Penang, Highlands (Curtis).

This Tupistra differs from the other Peninsular species, *T. grandis*, Ridl., in its smaller lighter colored flowers and the rounded club-shaped stigma which is flat and circular in *T. grandis*. Though not perhaps as striking as that species it is a pretty plant.

*Dracaena conferta*, n·sp. Stem 4 to 10 feet tall, little or not branched. Leaves narrow linear acuminate 24 to 27 inches long ⅜ inch wide, base broadly sheathing, midrib very strong at the base, thinning upwards and disappearing before the tip. Raceme 2 feet long, erect, simple or occasionally branched, the base with numerous reduced leaves with broad bases, and acuminate upwards, peduncle rather stout with a few small sheathing leaves, inflorescence long dense. Flowers white, three or four in a tuft, with very short pedicels, and 2 or 3 ovate acuminate bracts ⅛

inch long. Perianth tube ¼ inch long, narrow lobes linear ¼ inch long. Fruit globose as large as a pea.

Perak, Selama at 300 to 500 feet elevation (King's collection 3149); Thaiping Hills near the Tea Gardens. There is also a specimen in Cantley's collections without locality, either from Malacca or Sungei Ujong. This Dracaena is allied to *D. Porteri*, Bak., but has longer and stiffer leaves with a very dense raceme of flowers. It is known to Malays as "Poko San Juan hutan jantan."

*Dr. penangensis*, n.sp. A shrub about 8 or 10 feet tall, with the stem an inch through, leaves when young oblong petioled, adults shorter. Upper leaves lanceolate acuminate 6 to 7 inches long, 1 to 1¼ inch wide, petiole 1 inch long, sheathing at the base. Panicle erect 8 to 10 inches long with about eleven or twelve stiff branches four inches long or less with lanceolate acuminate bracts at the base ¼ to ½ inch long. Flowers in twos and threes on slender pedicels ¼ inch long. Perianth lobes narrow, white. Fruit as large as a cherry, 1 to 3 seeded, scarlet.

Penang at Batu Feringhi on the banks of the stream and at Highlands (Curtis 2369). Dried specimens of this often resemble those of *D. Maingayi* our biggest tree Dracaena, but the living plant is much smaller and the leaves are very variable in form.

*D. Jackiana*, Wall. Cat. 5145. This plant obtained in Penang by Wallich was confused by Baker (Journ. Linn. Soc. XIV, 5-32) with *D. aurantiaca*, Wallich, under the name of *D. spicata* var. *aurantiaca*; and Hooker in the flora of British India puts it under imperfectly known species. I have not seen Wallich's specimens but Dr. Prain says that a plant collected on the Thaiping Hills by Kunstler (No. 2719) is exactly like the Wallichian plant. This plant is I think identical with a plant I collected in Pahang and described under the name of *D. longifolia* (Trans. Linn. Soc. III, 388). Hooker refers the Perak plant to Kurz's *D. pachyphylla*, an Andamanese plant, which however is probably distinct to judge from his description.

*D. pendula*, n.sp. A tall shrub with a moderately stout stem about 6 feet tall, leaves broadly oblong lanceolate acum-

inate narrowed to the base and subpetiolate. Petiole winged, 8 to 14 inches long 1½ to 3½ inches wide. Panicle graceful nodding 15 inches or more long with a few distant branches slender 7 or 8 inches long bracts small ovate lanceolate. Flowers in tufts of 2 or 3 distant white on pedicels ¼ inch long, slender ¾ to nearly an inch long split into segments for one-half their length; the lobes linear dilated upwards, stamens about as long, anthers oblong.

This fine plant grows in damp swampy spots in forests. I collected it in the Dindings on Gunong Tungal (No. 9448 of my collections) and have it also from Panchur in Malacca; and from Kwala Dipang and Gopeng from King's collections (Nos. 8279 and 4643). The Malacca specimens have broader and more distinctly petiolate leaves, and the panicle is stouter, but it appears to be specifically the same. It belongs to the *nutantes* section of Dracaena, in which the flowers are in long pendulous lax panicles.

*Dracaena elliptica*, Thunb. I found this common and variable plant growing abundantly in muddy swampy places along the Sungei Tebrau, this Easter. In this locality it had quite a different appearance from the common lowland dry forest form, being altogether a much larger and stouter plant, almost a small tree in fact.

We have now no less than sixteen species of Dracaena recorded from the Malay Peninsula, but there are doubtless more than this for I have seen several plants in our forests which appear quite distinct from any described, but of which I have not been able to obtain flowers.

COMMELINACEÆ.

*Forrestia gracilis*, n. sp. Stem creeping then ascending for about three feet a quarter of an inch through, twiggy dark green and glabrous, internodes 2 inches long terete. Leaves lanceolate acuminate narrowed into a winged petiole, dark green and glabrous above, velvety beneath, margined with red appressed hairs, 8 inches long 2 inches wide, petiole and mouths of sheaths hairy. Heads small

few-flowered; bracts ovate pubescent white with a green keel. Sepals oblong hooded ciliate white $\frac{1}{6}$ inch long; petals longer lanceolate acute white; stamens 6; filaments contorted with a tuft of white hairs on the top. Anthers ovate deeply grooved white. Style filiform flexuous acuminate. Stigma minute, ovary small covered with white hair; capsule oblong pink.

*F. mollis*, Clarke, Monogr. Commel. p. 236 (in part, not of Hasskarl).

Very common in woods, Singapore. Tanglin, Pulau Ubin (Ridley 4130), (Walker 155); Johore: Tanjong Bunga (Ridley 6320); Pahang: Pulau Tijau (2381, 2382); Malacca: Sungei Buluh (10512); Selangor: Kuala Lumpor, Sungei Ujong: Gunong Berumbun, (Cantley's Coll.); Dindings: Telok Sera. Kedah Peak.

It is curious that this our commonest species has escaped being described till now, but it seems to have been mixed up with the rarer *F. mollis*. It is known as "Setawa betina" and the Sakais use a decoction of its roots for rheumatism.

*F. irritans*, n. sp. Stem tall and stout $\frac{1}{2}$ inch through, leaves elliptic lanceolate with a broad flat petiole, acuminate 9 inches long, 3 inches across, hairy on both sides, sheaths $1\frac{1}{2}$ inches long, glabrous except for the hispid edges. Heads large and dense over an inch through, densely covered with red spiny hairs, sepals lanceolate covered with similar hairs. Stamens 6, anthers oblong, style filiform.

Selangor, on the Tras route at the 15th mile; Perak Bujong Malacca (Ridley 9784), Sungei Ujong, Bukit Kupayiang (Cantley's collection.) Rather rare in woods at an altitude of about 2,000 feet. A very distinct species, from its large globose heads of flowers covered densely with sharp pungent red spines. I have never seen fruit of it.

## PALMÆ.

*Pinanga Singaporensis*, n. sp. Stems tufted dark green 6 to 15 feet tall $\frac{3}{4}$ inch through; internodes 8 inches long.

Leaves concolorous or a little paler along the back about 3 feet long, sheath tubular, petiole 8 inches long, leaflets sigmoid acuminate about 13, sub-opposite, terminal one forked; 12 inches long by 3 inches wide or less, nerves 5 to 7. Spike branched erect 4 inches long, with 5 branches. Spathe thin boat-shaped papery with a short point brownish pink 1½ inch long. Rachis cream color scurfy, flowers distichous. Males ¼ inch long, ivory white. Sepals very small acute. Petals oblique ovate acuminate much larger. Stamens 14 white, filaments very short, anthers oblong, no pistillode. Female petals and sepals broadly oblong pink, edges ciliate, stigma small, sessile papillose circular white.

This pretty palm occurs in Singapore in forests at Bukit Timah, Mandai, Stagmount and Selitar, and is No. 11267 of my collections. I have not seen it outside Singapore, and it is rather scarce there.

*Ptychoraphis longiflora*, n. sp. Habit and stems of *Pt. Singaporensis*. Leaf three feet or more long, rachis brown scurfy, leaflets linear acuminate 5-ribbed, alternate about 40 pairs 18 inches long, ½ inch wide. Peduncle stout 1 inch long ribbed and scurfy, branches of inflorescence slender 4 or 5 scurfy, 6 or 7 inches long. Flowers in distinct pairs, one male and one female together about 20 pairs on a branch; males $\frac{3}{16}$ inch long, with two orbicular gibbous bracts at the base. Calyx lobes orbicular fringed. Petals lanceolate obtuse much longer. Stamens 6 shorter than the petals, filaments with a broad base narrowed upwards, anthers oblong dorsifixed. Pistillode conic stout as long as the stamens. Female flowers. Bract single small. Sepals orbicular ciliate. Petals ovate orbicular imbricate, pistil ovoid.

Johore on the top of Gunong Banang at Batu Pahat, (Ridley 1121). Besides this there are two other species of this genus described. *Pt. Singaporensis*, Becc., the Korintin palm, abundant in the South of the Peninsula, and *Pt. augusta* of the Nicobars, a plant of totally different habit. This new species closely resembles *Pt. Singaporensis*, but the petals of the male are very much longer.

*Iguanura spectabilis*, n. sp. Stem from 3 to 8 feet tall, tufted or solitary very stout over 1½ inch through. Leaves entire and cuneate bilobed at the apex, margins crenulate toothed strongly ribbed, three or more feet long one foot across, petiole. Inflorescence from among the leaves, peduncle over a foot long with two sheaths 6 inches long, and a bract-like ovate acute leaf ¼ inch long above, branches stout ascending, six inches long, deep green. Flowers spirally arranged sunk in the rachis. Male, sepals ovate. Petals oblong acute twice as long ⅛ inch long. Stamens 6, longer than the petals, filaments thick connate at the base with the long cylindric obtuse pistillode. Females, sepals rounded, petals ovate rounded. Fruit elliptic tip curved, black when ripe, ¾ inch long, on the thickened rachis.

This superb palm known to Malays as the "Teruno" occurse on the Hermitage Hill in Perak, and at Bruas in the Dindings where it was first obtained by Mr. Curtis and later by myself, (No. 8403) of my collections. Young living plants sent home by Mr. Curtis were described by Dr. Masters in the Gardener's Chronicle (1898, XXIII, 258) under the name of *Geonoma Pynærtiana*. In the Dindings it forms a bush with numerous short stems, on the Hermitage Hill I found it with a stout tall stem. It is a most beautiful palm when well grown, the broad leaves deep green when adult, and pink when first put out, making it most attractive.

*I. ferruginea*, n. sp. Stem slender, leaves 18 inches long, petiole four inches long, rachis red-scurfy, leaflets 5 or 6 pairs alternate trapezoid, base narrowed, apex acuminate, margins more or less toothed, 6 inches long 3 inches through. Spathes 6 inches long acuminate. Inflorescence on a peduncle 6 to 8 inches long, red tomentose, branches thick 9 to 11 some-times branched again, 6 inches long covered with red wool. Flowers scattered distichous in foveolæ, covered with red wool. Male flowers glabrous. Sepals ovate rounded, petals lanceolate ribbed, ⅓ longer. Female flowers sepals similar, petals shorter and

blunter. Drupe cylindric curved, slightly narrowed towards the tip, black, half inch long. Seed cylindric acute curved rugose ⅝ inch long ; albumen equable.

On the Thaiping Hills common from about 2000 feet elevation upwards (10684 ; 11405 of my collection) and Bujong Malacca (Curtis 3164). This palm has the habit of *I. polymorpha*, Becc., but the stouter inflorescence on a longer peduncle and covered with red wool, the larger flowers, and curved cylindric fruit, make it very distinct.

The Iguanuras are not an easy group of palms to separate, as they are apt to be very variable especially in the form of the inflorescence. There appear to be seven kinds at present known from the Peninsula. The commonest species is *I. geonomæformis*, Mart. A lowland species with usually one simple spike. Of this there are the following forms : (a) *typica*, with a simple stout tomentose spike, (b) *ramosa*, a similar spike but branched, with 2 or 3 branches, (c) *malaccensis*, with a slender glabrous simple spike (occasionally branched). The leaves of all these forms may be quite entire. *I. Wallichiana*, Hook fil, with a compound inflorescence of several slender branches, is allied to this latter form. It also varies in the form of the leaves. Two plants described by Hooker and Beccari from Scortechini's collection, viz., *I. diffusa* and *I. parvula*, appear to me to be forms of these species. The first is a large plant with an inflorescence more compound, the second a dwarf abnormal form. I have only however seen sketches of them and very little of the plants appears to have been collected. *I. corniculata* has also only once been collected. The fruit is curiously curved, and is possibly abnormal, *I. polymorpha*, Becc., including *I. brevipes*, Hook. fil., is a distinct plant, not rare on the Thaiping Hills. *I. ferruginea* is allied to it but seems to me to be distinct. *I. bicornis* has curiously bilobed fruit, and occurs also on the Thaiping Hills, but seems to be rare.

*Livistona rupicola*, n. sp. Stem short and thick about 3 feet long and 6 inches through, densely covered with brown fibers from the leaf sheaths. Leaves orbicular about 2 feet across with about 12 leaflets rather narrow very acumi-

nate tips setaceous; petiole slender 20 inches long nearly thornless. Spadix slender, much branched. Spathes split striate cuspidate dark brown, the two basal ones three inches long, upper ones slightly dilate cuspidate. Branches many long slender with many very long and slender sinuous spikes 1 to 2 inches long, lengthening to 4 inches in fruit. Bracts at the base of the branches linear narrow caducous. Flowers very small globose; sepals rounded gibbous. Petals similar. Staminal crown with 6 subulate teeth.

Selangor limestone rocks at the Kuala Lumpor caves (8285 of my collection), Lankawi Islands, (Curtis).

This charming palm, the Serdang Batu of the Lankawi Islands, is probably the smallest species of the genus. It is remarkable for its very short thick stem densely covered with brown fibres, the remains of old leaf sheaths. The inflorescence is also very small for the genus. It grows on the limestone rocks of the Selangor caves from the lower part to the top of the cliffs.

*Licuala longepedunculata*, n. sp. Stem 2 to 8 feet tall, 1 to 1½ inch through, leaves 4 to 5 feet long orbicular, lobes 6 or more narrowed at the base and broadened upwards with broad blunt teeth 15 to 16 inches long and 3 inches across at the tip, deep green, petiole slender not thorny. Inflorescence slender 3 feet or more long, peduncle broad flattened at the base, quite glabrous over 2 feet long, sheaths distant long, spikes 3 inches long, in fours. Flowers scattered over ⅛ inch long, rachis moderately stout, calyx urn-shaped sessile not lobed. Petals lanceolate obtuse.

Perak, Gunong Batu Putih (Wray 254) (King's Coll. 8148). I only know this species from the above mentioned collections. Beccari labels it "*L. glabra*, foliis latioribus," but it is certainly very distinct from *L. glabra*.

*L.* (*Pericycla*) *paniculata*, n. sp. Leaf large, lobes 2½ feet long, rather narrow, with short teeth ¼ inch broad. Inflorescence panicled wide-spreading 3 feet long, spathes 6 not split, the lowest 8 inches long ½ inch wide, upper part reddish, upper spathes shorter dilated upwards. Branches

panicled, spikes long and slender 5 to 7, glabrous or scurfy, 7 inches long or less. Flowers scattered sessile $\frac{1}{8}$ inch long. Calyx cylindric with a broad base, truncate obscurely and irregularly lobed glabrous. Petals short and broad ovate acute. Staminal ring with 6 teeth. Pistil sometimes bilobed, stigma lateral.

I collected a specimen of this on the Hermitage Hill in Perak, and have never seen it since, and unfortunately omitted to record the size of the plant. It is evidently allied to *L. pericycla*, *Zipp.*, *Pericycla penduliflora* of Blume, a native of New Guinea, from which it differs in having solitary sessile, not stalked flowers in pairs. The panicled inflorescence is unique in Malay Licualas as at present known, and is the characteristic of the section *Pericyclus* of which the New Guinea species is the only other one known. It is to be hoped that any one visiting the Hermitage Hill will recollect this curious plant and bring full details of its habit and size.

*Calamus aquatilis*, n. sp. Stem fairly stout about 30 feet long covered with dense bristle-like black spines. Leaf large flagelliferous armed with copious black spines in short rows, petiole a foot long stout black rounded, edge armed with spines of different sizes flattened 2 inches long or less, those at the base black long or slender, leaflets numerous equidistant linear acuminate 1 foot long an inch broad, bristles short scattered along the edges and back, flagellum 4 feet long, hooks in half whorls numerous. Panicle very large and stout, lower sheaths tubular an inch through with numerous decurved spines single or in twos and threes black tipped, chiefly on the back and sides on the upper part. Branches about 2 feet long, secondary spathes tubular unarmed an inch long, male branchlets numerous 6 inches long, spathels tubular about $\frac{1}{8}$ inch long, spikes subdistichous recurved $\frac{3}{8}$ inch long green. Spathellules saucer-shaped with a small ovate limb, sepals oblong lanceolate. Petals as long oblong lanceolate thicker. Stamens, filaments rather long slender, anthers long narrow. Female branchlets 2 to 3 inches long, spathels funnel-shaped. Spathellules

small saucer-shaped. Flowers solitary, sepals ovate as long as the petals and quite similar. Fruit small globular beaked ½ inch long scales in 6 whorls, rhomboidal as broad as long, yellow or brownish yellow, tips darker, grooved.

This rattan is common in tidal river swamps, and is known as "Rotan Bakau." There is a trade rattan of the same name but I am not yet certain that it belongs strictly to this plant. The general appearance of this species when out of flower is that of *Daemonorops angustifolius*. It does not seem to flower very frequently, as I have seldom found it in flower or fruit, abundant as it is, which is probably why it has never hitherto been described. Professor Beccari who is engaged on a work on our rattans to be published in the Annals of the Botanic Gardens of Calcutta, considers it to be quite a distinct plant from any described.

I have met with it in Singapore, on the Serangoon Road, and at Changi (6275 of my collections), Johore, Panchur on the Johore river; on the Sungei Tebrau river, and at Batu Pahat (11216), and in Pahang at Kuala Pahang.

### AROIDEÆ.

*Cryptocoryne purpurea*. n. sp. Aquatic, stem creeping stoloniferous. Leaves ovate or elliptic ovate, base broad 3 inches long 1¾ inch wide, petioles 4 inches long, peduncle short about half an inch long, spathe 3 or more inches long, tube twisted ¼ inch through, white, limb ovate caudate ½ to 1 inch long, half an inch wide deep purple brown with a yellow mouth, pustular, tail ½ inch long, valve over the inflorescence oblong truncate pale yellow. Female flowers 6 to 8 connate in a circle, styles very short, stigmas discoid, neuters above the pistils 5 or more, nude portion of spadix slender. Male flowers few yellow obcuneate, appendix small elliptic clubbed.

Johore, Kota Tinggi (4214 of my collections). This plant cultivated in the Singapore Botanic Gardens for several years, was sent to Kew Gardens where it flowered

and was figured in the Botanical Magazine plate 7719 under the name of *C. Griffithii*. It is however quite distinct from that in its more numerous, female flowers, smaller appendix to the spadix, and much longer tube. It grows very readily in water, and is perhaps the easiest to cultivate. I have only seen it in the one locality mentioned, our commonest species being the short tubed *C. Griffithii*.

*Typhonium fultum*, n. sp. A small herb with a short stem above the ground propped on strong roots. Leaves 5 or 6 ovate or deltoid hastate 2 to 3 inches long 2 inches wide deeply cordate, apex acute, lobes rounded, petiole 2½ inches long. Peduncle ¼ inch long, spathe with a green base dilated ¼ to ½ inch long, limb 2 inches long ½ inch broad; subacute or acuminate purple-veined, tip green. Spadix about as long. Appendage orange brown cylindric from a thick base tapering upwards, below a short nude portion. Male portion of about 6 rows of oblong yellowish anthers, then a longer nude portion. Neuters numerous horn-shaped white up-curved. Females in one whorl oblong, one ovuled.

Selangor at the limestone caves near Kuala Lumpor (8165) also found in Lankawi Islands by Curtis.

This odd little aroid is remarkable for the stem standing up supported on its roots above ground after the manner of a Pandanus, a habit not observed in any other species, the rest of them having small underground tubers.

*T. filiforme*, n. sp. A very small herb, tuber globose ⅓ inch through. Leaves 2 or 3 deltoid hastate acuminate, lobes divaricate acute 2 or 3 inches long, ¾ to 1½ inch wide, petiole slender 2 to 5 inches long. Peduncle ¼ inch long. Spathe 3 inches, base elliptic ¼ inch long olive green, limb linear very narrow, apex eventually coiled up yellowish spotted with red. Spadix very slender 3½ inches long, appendix ochre yellow filiform nearly 3 inches long, male portion short below them a long slender nude portion, neuters filiform contorted long, female flowers few oblong.

I found this at the foot of the limestone cliffs at Kuala Dipang in Perak. It is evidently allied to *T. bulbiferum*, Dalz., of the Concan, differing in the absence of any trace of bulbils, the longer appendage and neuters, and longer bare space below the male flowers.

*Amorphophallus Malaccensis*, n. sp. Tuber 4 inches through hemispheric with a depressed top. Leaves not certainly known. Peduncle 7 inches tall rough. Spathe tube wide trumpet-shaped 3 inches long, limb broad rounded six inches long and as wide. Spadix longer, appendage fusiform acuminate 6 inches long rugose hollow, loose textured and fibrous within. Male portion one inch long anthers crowded oblong. Female portion $2\frac{1}{2}$ inches long. Flowers numerous, ovaries ovoid, style $\frac{1}{4}$ inch long.

I only know this from some dried specimens which were collected by a native collector on Bukit Panchor in Malacca. It belongs to the section including *Amorphophallus*, *Rex.*, and *campanulatus*, but is distinct in its longer peduncles, and longer narrower appendage. I have several times met with foliage of a plant very much resembling that of a *Rex* with a tall stout dark green scabrid petiole which may perhaps belong to this species. A very large spike of fruit over a foot longer with berries half an inch long which was obtained by Mr. Hervey on Bukit Payong in Malacca is very probably the fruit of this plant. It should be looked for again.

*A. minor*, n. sp. Tuber an inch through. Leaf petiole slender 9 inches long, blade three branched each branched again, leaflets numerous thin green (red when young) lanceolate acuminate inaequilateral 3 inches long by one inch wide, nerves numerous close joining an inner intramarginal one. Peduncle 8 to 12 inches long with loose brown sheaths at the base, the largest truncate 4 inches long. Spathe 3 to 4 inches long convolute at the base lanceolate acuminate 1 to $1\frac{1}{2}$ inch across. Spadix 3 inches long. Appendage cylindric-conic an inch long. Male portion as long as the appendage. Flowers very numerous crowded. Females few. Style very short.

Perak on the Thaiping Hills; and in Province Wellesley at Tasek Gelugor. This is allied to *A. sparsiflorus*, Hook. fil., differing in the shorter appendage and longer male portion of the inflorescence.

*A. carnea* n. sp. Tuber hemispheric 3 inches across. Leaf unknown. Peduncle 3 inches and a half long, smooth gray green with brown blotches, sheath at base 2 inches long. Spathe 5 inches long, loosely convolute at the base with a broad limb pinkish with brown blotches, paler within. Spadix rather longer. Appendix conic obtuse 3 inches long 1 inch through at the base fleshed low obscurely cancellate. Male portion 2 inches long stout greenish. Stamens densely crowded. Female portion ovaries shortly pedicellate, broad flask shaped, style short and thick. Stigma lobed.

Lankawi Islands (Curtis). This plant was flowered from a tuber brought in with tubers of *Arisaema* from Lankawi Islands, in the Penang Gardens. I have only seen a drawing of it but I know nothing quite like it.

*Alocasia ovalifolia*, n. sp. Stem about a foot tall, leaves ovate cordate acute dark green one to 2 feet long 5 to 12 inches wide with 20 pairs of nerves, petiole stout over a foot long. Peduncle six inches long or less. Spathe 3 to 6 inches long, tubular portion $1\frac{1}{2}$ inch long, limb 3 inches long $\frac{1}{4}$ inch wide oblong obtuse. Spadix slender, appendage cylindric $\frac{3}{4}$ to 2 inches long. Male portion 1 inch long. Flowers oblong crowded, below them a nude portion. Female portion 1 inch long.

Johore, base of Gunong Panti; Selangor, Tras Route at the 15th mile (No. 8487), Ginting Peras, Bukit Kuta; Perak, Sungei Larut (Wray 2457), Larut Hills; Penang, Moniots Road (Curtis). Rather a dull looking *Alocasia* not uncommon in the hill woods.

*Pothos inaequalis*, n. sp. Stem rather slender much branched. Leaves elliptic oblanceolate with a long point and acuneate base intramarginal vein often far from the edge undulate with another very inconspicuous one close to the edge, main nerves often large and remote 4 to 7

inches long 1 to 2 inches wide. Petiole ½ to 1 inch long sheathing to the thick knee which is half an inch long Bracts several, upper one sheathing ½ inch long, lower ones small. Peduncle 1½ to 2 inches long fairly stout curved. Spadix an inch long cylindric dense flowered. Sepals cuneate with a broad flat triangular top. Pistil top broad rounded. Pahang, Pulau Tawar (2391).

*P. ellipticus*, n. sp. Stem fairly stout leaves elliptic cuspidate 5 inches long 2½ inch wide, pale green when dry, keel stout, base rounded, inner intermarginal vein some way from the edge, outer one close to the edge, parallel nerves fine and close. Petiole 3 inches long sheathing rather broadly to the knee ¼ inch long. Peduncle stout 2 inches or less deflexed. Spadix nearly sessile ¾ to 1 inch long thick cylindric dense flowered. Flowers fairly large. Sepals oblong with a broad inflexed top. Stigma discoid shortly elevated. Fruit oblong ½ inch long.

Pahang on the Pahang river, at Kuala Tembiling and Pulau Tawar.

*P. grandispatha*, n. sp. Stem slender less than ⅛ inch thick. Leaves lanceolate cuspidate 6 to 8 inches long, 2 to 2½ inches wide, cusp ½ inch long base narrowed blunt. Petiole 2 inches long sheathing rather broadly to the very short ½ inch knee, sheaths eventually breaking up into fibres. Peduncle slender 2 inches long. Spathe broadly ovate acuminate, apparently purple in life, narrowed at the base 2½ inches long 1 inch wide. Spadix very slender 1 inch long sessile. Flowers very small, sepals oblong truncate, style distinct with a small discoid stigma.

Penang, West Hill (Curtis). Allied to *P. brevistylus*, Engler. This plant is remarkable for its large spathe.

## PANDANACEÆ.

*Pandanus immersus*, n. sp. A stout pandan growing immersed in water, the stem rising but little above, leaves many feet long broadly linear 4 inches across, glaucous beneath, acuminate with a long point, thorns numerous brown. Female spike solitary on a stout flexuous peduncle 2 inches long ½ inch through, oblong thick green 4 inches long 1½

inches through, carpels small with a very stout simple curved style $\frac{1}{8}$ inch long.

Selangor in the Labu River, forming dense thickets. Native name "Mengkuang Ayer."

*P. bicornis*, n. sp. Stems short, only one or two feet tall. Leaves dark green glaucescent at the top of the stem 2 feet or more long 2 inches wide broadly linear and tapering quickly into a very thorny tail 3 inches long, edge and keel armed especially at the base with numerous recurved thorns. Female bracts broad ovate, outer ones rather abruptly acuminate 6 inches long with a slender point 2 inches long thorny, inner bracts obtuse, head solitary oblong rounded at the top 4 inches long and nearly as broad green, carpels nearly $\frac{1}{2}$ inch through $\frac{3}{4}$ inch long top broad free obscurely angled. Style broad short with two spreading short sharp horns with broad bases about $\frac{1}{8}$ inch long.

Perak, Thaiping Hills in dense forest at 2500 to 3000 feet altitude.

*P. aurantiacus*, n. sp. A large branching shrub with stems 2 or 3 inches through and about 12 feet tall. Leaves over 3 feet long, $1\frac{1}{2}$ inch wide, glaucous green, linear long acuminate, tips deflexed, with numerous close-set short thorns on the edge and keel. Female inflorescence with a stout rachis about a foot long and five globose oblong heads $2\frac{1}{2}$ inches long 1 inch through, orange colored. Carpels large $\frac{3}{4}$ inch long, apex conic ending in a long stout but not very hard beak.

Singapore, Bukit Mandai Road; Johore, Tanjong Bunga (6288 of my collection); Perak, Larut Hills; also in Sarawak.

This grows on swamps on river banks usually near the sea, and is known in Johore as "Pandan Akar". This may possibly be the *P. Yvani* of Solms-Laubach (Linnæa XLII, 20) based on a plant collected by Yvan in Malacca, but the description is too poor to identify any pandan.

*P. stelliger*, n. sp. A slender stemmed pandan 4 to 10 feet tall, branched. Leaves linear acuminate shining grey green

over a foot long and an inch wide, the point narrow 3 inches long, thorns distant except at the point which is very thorny. Heads oblong ovoid 2 inches long and over an inch through in a cluster of four nearly sessile. Carpels ¼ inch through the style oblong, top square with from 3 to 6 horizontal points sharp and rough at the tip.

Selangor, on the Tras Route at the 20th mile (8775;) Perak, Thaiping Hills at 2500 feet altitude in forests.

This was referred to *P. minor*, Ham., by the Kew authorities but differs in the clustered heads of fruits and the curious style which is quite flat and square at the top with from 3 to 6 horizontally spreading points.

*P. glaucophyllus*, n. sp. Stems 10 to 12 feet tall ½ to 1 inch through. Leaves crowded at the top 1 to 2 feet or more long 2 inches wide glaucous broadly linear oblong, tip abruptly acuminate, edge minutely denticulate rather flaccid, midrib prominent with very small thorns, capitulum globose 2 inches long on a stout peduncle about 3 inches long. Fruit rounded tapering into a stout upcurved simple spine ⅙ inch long grooved above the tip acute.

Perak, Thaiping Hills in dense forests, about 2500 feet altitude. Rather local, growing in small patches. Allied to *P. parvus*, Ridl, but very much larger in all its parts.

*P. penangensis*, n. sp. A tall stout tree about 20 feet tall and four inches through the stem. Leaves very long linear acuminate 6 to 12 or 14 feet long 4 inches across often especially when young marbled light and dark green, edges and keel armed with stout thorns crowded towards the tip of the leaves. Heads 4 or 5 together on a short peduncle, green oblong 6 inches long, 3 inches through. Carpels an inch long, free portion conic angled ⅓ inch long. Styles strong simple hard dark brown polished curved forward ½ an inch long.

Penang Hill from the base to the top, in woods. This resembles *P. furcatus*, Roxb., in habit but has a compound inflorescence.

CYPERACEÆ.

*Mapania triquetra*, n. sp. Stem ascending or erect 6 inches tall, trigonous broad from the very broad leaf. Sheaths 12 inch long and one inch wide green edged with pink. Petiole green 2 to 3 inches long, blade oblong dark green above, paler beneath, base broad apex rounded ending abruptly in a tail 1½ inch long, edges aculeate, whole blade 6 to 8 inches long, 2 inches wide. Scapes slender 3 inches long red. Head of flowers very small ½ inch long narrow. Bracts shorter lanceolate red. Squamellæ 6, two outer ones with ciliate keels. Stamens three white anthers twisted linear oblong. Style long. Stigmas 3 short.

Woods, Dindings, Lumut (Ridley), Pangkor (Scortechnii); Negri Sembilan, Bukit Tumiang (Cantley's collection); Penang Hill (Curtis). Also in Sarawak.

This pretty and curious plant has been confused with the common *M. humilis*, Naves and Villar, but is really totally distinct in the broad triangular stem shorter and broader leaf blade and the very small head of flowers.

# Notes on a Cruise in the Southern China Sea.

C. Boden Kloss.

In 1900 I spent about eleven weeks, including the months of August and September, cruising about with Dr. W. L. Abbott in his Schooner "Terrapin" which had just been launched. Our purpose was to make collections of mammals and birds and of any other objects zoological that might fall in our way. As the islands of the Southern China Sea amongst which the time was spent, have received either but scanty notice or none at all, the following pages may have some interest. Unfortunately for the present purpose I kept only the very baldest log of our voyage so that the account of our experiences, drawn up after an interval of three years, is far from being as satisfactory as I could wish.

I was unable to accompany the schooner when she sailed at the beginning of July so arranged to join her at Linga, and in the middle of the month therefore left Singapore in the *S. S. Malacca*.

We stopped a night at Rhio *en route* and I was thus enabled to get from the Resident a permit to travel in the Rhio-Linga Dependency in which the whole of our cruise was to take place. The town of Rhio is prettily situated and laid out, but very small and quiet; it possesses an hotel and a good fruit-market: every other one of its shops appears to be run as a pawn-broking establishment. A long walk in the surrounding country showed me nothing more inviting than clayey hills covered with bracken and the S'ndudu tree (*Melastoma polyanthum*), and everywhere dotted with Chinese tombs.

From Rhio to Linga—we called at Sinkep Island on the way with provisions for the tin mines—was, I think, four days steaming through smooth seas and green islands. The *Macassar* is an old wooden tub capable of doing about 7 knots in calm water with the wind astern. The only accommodation

she could offer was the open bridge crowded with natives, where I found room for a deck chair. Had this been all there would have been nothing to kick at, but unfortunately the vessel swarmed with a certain highly objectionable and active *Rhynchota* that spoilt all pleasure, and when I hailed with delight the appearance of the "Terrapin" lying off Tanjong Buton on the south side of Linga, I was, after four days of an inferno, in a state that I had never been in before and fervently pray never to attain again.

## Linga.

Lying about mid-way between Singapore and Banka, Linga is an island of irregular shape about 33 miles in length in a north-west and south-east direction, and is surrounded by smaller islands of various sizes. Unlike its near neighbour Sinkep, it is not worked for tin, and is best known as being at one time the head quarters of the numerous pirates who used to ravage the western seas of the Malay Archipelago in the early part of last century.

The schooner had to anchor a mile or so from the land since off-shore for some distance extended banks of soft black mud through which we were compelled to wade when the tide was low while at other times the sea broke on them with some force for the roadstead is exposed to south-easterly winds. At Tanjong Buton were a few Chinese *kedais* and the house of a Dutch Assistant-Resident (now withdrawn) and from here a road had been made to the town of Linga.

The best collecting ground was on the outskirts of the village of Maruang, lying two or three miles away between the road and the sea. The surrounding country was, for the most part, a sago swamp, but in the fruit plantations of the Kampong certain birds and small mammals were numerous. The village itself consisted of a settlement of Sumatran Malays, the houses—about forty in number—built in two orderly rows with the mosque in the centre. The thousands of huge durian trees that surround it, were just then fruiting and at the little watch-houses in the plantations freshly fallen durians could be had in piles at a cent or two apiece while the few small steamers that call were constantly taking cargoes up to Singapore.

Learning from the people of the village that flocks of fruit-bats visited their fruit-trees nightly, we, one evening when there was a little moonlight, went up the plantation for the purpose of obtaining specimens.

Accompanied by half the boys of the Kampong, we took up places beneath a huge rambutan tree—the gathering point of great numbers of bats—but for a time made very poor practice at the dark bodies flitting between the branches in the dim light. Swarms of mosquitoes did not help to improve matters. At length however I hit on a plan that gave better results; choosing a large bunch of fruit that was frequently visited, I rested my gun against a convenient tree-trunk and took careful aim at it. Holding the barrels steadily in position all I had now to do was to stand up and watch the target: whenever a bat settled on that particular bunch I pressed the trigger and the shot was invariably followed by a thud on the ground or crashing and squawking among the branches as a wounded animal dropped slowly downwards. In a couple of hours the boys had picked up a dozen specimens of *Pteropus vampyrus* with which we returned to the boat, leaving sundry others to be recovered on the morrow.

On the way back a bullet was kept in readiness for wild-pig. None were seen, however, though nightly rootings along the road showed their presence in the neighbourhood.

The following day was given over to the preparation of skins and skeletons from the specimens obtained.

The 24th of July, our last day in the island, was spent in visiting Linga Kampong to bid farewell to the Sultan and to buy supplies for the voyage ahead.

The town is distant about an hour and a half from the sea and is reached by a road constructed by the Dutch Assistant-Resident. Although roughly made it is passable for the Sultan's gharry and for the few local rickshaws which, old and dilapidated, generally traverse it at a walking pace.

For the first two miles it runs though a swamp planted with sago palms, then coming out on hard clay ground is bordered with scrub and lallang until near the town it passes through plantations of various fruit-trees, sugar-cane and bananas.

Although the actual control is in the hands of the Dutch from whom he receives an income of some $80,000 a year, the Sultan of Linga is nominally ruler over neighbouring parts of Sumatra, all the islands between Sinkep and Singapore and all the various small groups in the Southern China Sea.

The town of Linga—his capital—is situated on the banks of a stream navigable by small praus at high water, about two miles from its mouth. To the north a fantastically split peak, the highest summit of the Linga group, rises to a height of 3,921 feet, densely covered with jungle and scrub and scarcely ever free from clouds.

The population of the town, Malays and Chinese, number about 6,000. All the houses are built on piles, those of the Chinese on a muddy expanse by the banks of the river which not infrequently overflows. A number of substantial brick buildings have at one time also been erected by them but are now in a ruinous condition.

The houses of the Malays, shaded by fruit trees, arecas and coco-palms were scattered about without regard to orderly arrangement. Amongst them stood the school, which was apparantly well patronised, and the Sultan's palace, a large and ugly barn-like structure of wood.

The Sultan was absent and we proceeded at once to the Chinese portion of the town to get through with our marketing.

The Chinese community is under a "Captain China" who in the Linga Sultanate is responsible to the Dutch only for the good behaviour of his charge and who collects for them the poll tax of $3 a head every year.

The bazaar was of fair size and sold the usual merchandise found in such places that includes various articles ranging from a bottle of scent to an onion. Our requirements of rice, vegetables, curry stuffs etc., were soon satisfied and from the sarong shops kept by Klings we got a few European cotton sarongs for use on board. The Malays here were apparently like the lillies of the field. "They toil not neither do they spin," and it was with difficulty that we got from them even a few eggs and chickens.

We returned to the "Terrapin" by way of the river in a canoe with a small roof of kajangs. The water was very low

and paddling between muddy banks we were unable to see anything of the country on either side. Crocodiles are said to be numerous but none were met and after crossing the bar at the river mouth, we got up sail and in short time reached the schooner.

Previous to my arrival Dr. Abbott had made an expedition to the peak. He spent eight days in a hut built at an altitude of about 1000 feet and ascended on three occasions to 3000 feet, but each time the mist was so dense that he could not proceed higher. Animal life was remarkably scarce in the mountain forest; the lotong, however, was seen occasionally and at the highest elevation reached the "house" of a pig was found. Birds were very few in number. The mountain seemed to offer most attraction to a botanist: orchids occurred in great abundance.

In order to give a complete list of the mammals known from Linga I have included here the further material obtained by Dr. Abbott during a second visit to the island in 1901. All species that were described for the first time from both collections are distinguished by the addition of sp. nov.

1. Semnopithecus maurus.
2. Macacus cynomolgus.
3. Pteropus vampyrus.
4. Tupaia tana.
5. T. malaccana.
6. Viverra tangalunga.
7. Arctogalidia simplex, sp nov.
8. Tragulus javanicus.
9. T. pretiosus, sp. nov.
10. Sus vittatus.
11. Ratufa notabilis, sp. nov.
12. Sciurus vittatus.
13. Sciurus tenuis.
14. S. notatus.
15. Rhinosciurus laticaudatus
16. Mus lingensis, sp. nov.
17. M. fremens, sp. nov.
18. M. firmus, sp. nov.

The birds of Linga show no peculiarities and do not differ from those occurring in the adjacent mainlands. The most complete collection recorded is that made by the native hunters of the late Mr. A. H. Everett. The list of species is given in "Novitates Zoologicæ."

## Pulo Taya and the Nyamok Islets.

We left Linga at 2 a.m. on the morning of July 25th bound for a group of three small islands forty miles to the south-eastward. With the wind ahead all the way it was not until mid-day on the 26th that we anchored off Taya the largest of the three.

The island is fairly steep-to, of granite formation rising to a double peak about 600 feet high. It is about a mile and a half long north and south, oval in shape and covered with forest,

Landing on the east side on a sandy bay in a bight between the hills we found at the south end of the beach just within the jungle a spring of good water. Near the shore the bay was blocked up with coral over which at low tide we had to scramble. A little party of Orang Laut in their crazy praus, visiting the island for "ikan merah" for which it is well known, told us that rats, squirrels, and a "biawak" were to be got; but during the three occasions we were ashore we saw neither. The only birds obtained were the Nicobar (*Calœnas nicobarica*) and Nutmeg pigeons (*Myristicivora bicolor*), which last occurs on nearly all islands in this region: the glossy starling (*Calornis chalybeus*) with dark metallic green plumage and red irrides: a gaudy little sunbird (*Anthothreptes rhodolæma*), the Eastern reef heron (*Lepterodius sacer*), and *Halcyon chloris*, the blue-and-white kingfisher. Last and best of all was one specimen of *Columba grisea*, a bird of extreme rarity in collections.* In general appearance it is somewhat similar to the cream-and-black Nutmeg pigeon if the former colour were replaced by a pale grey.

On the Nyamok Islands about a mile north of Taya, two islets, the larger no more than two or three hundred yards in

* The British Museum Catalogue and Pigeons records a single specimen only.

diameter, we shot a blue-and-white king fisher and the reef heron.

These islets, neither of which is more than 150 feet high, are covered with thin jungle in which we saw several specimens of the Nicobar pigeon—the "burong mas" or golden bird of the Malays.

Taya was left at midday on the 28th and soon after making sail a squall from the south-west struck us. We ran before it, goosewinged with scandalised sails, the seas racing up behind and breaking in showers of spray under the counter. In the couple of hours it lasted we had made nearly twenty miles of our way to Pulo Pengiki Besar and afterwards sailing with a wind that allowed an easy course to be laid, anchor was dropped in a bay on the north side of the island at six o'clock on the evening of July 31st.

## Pulo Pengiki Besar or St. Barbe Island.

Seen from a distance Pengiki appears like two or three separate islands, being lower at the centre than in the north-east and west. Its height is about 750 feet and it is covered with trees except at those places on the hill sides where large outcrops of rock occur. On such spots what vegetation exists is of a sparse and stunted type.

For some distance from the shore a reef filled up the bay where, indeed, the conditions are most favourable for the growth of corals. As one rowed over the pellucid green water, looking down they were to be seen in indescribable variety—great heads formed like massive boulders and tiny sprays no less delicate than a piece of moss. Corals of all shapes and shade were there—pink, grey, yellow, brown, blue, green, red, while among the crevices and branches swam fish as gorgeous as their surroundings—little fellows half an inch in length, blue, red, and yellow and others of larger size whose brilliancy of colouring passed almost unremarked by comparison with the grotesqueness of their forms.

In the centre of the bay and connected at low tide with the shore stood a rocky islet frequented by numbers of the white tern (*Sterna bergii*) with rose-tinted breasts from which the flush fades immediately after death.

From several small streams within the jungle good water may be obtained; they are, however, too weak to force a passage to the sea and must be looked for above the beach.

At Pengiki we spent two days but found the island, although of fair size—three miles long and nearly two wide—very scantily furnished with animal life. Pigeons both Nicobar and *bicolor*, were fairly numerous as were the glossy starling and blue-and-white kingfisher, but no other birds were seen with the exception of an eagle and a single grey wagtail. A python and viper were obtained and a glimpse was caught of a small animal in a tree that may have been a musang. Macaque monkeys (cynomolgus?) were, however, common and a new species of squirrel (*Sciurus mimiculus*), a dwarf form of *S. prevostii*, was obtained.

The jungle was of fair height but possessed scarcely any undergrowth and all day long in the cool green light, swarms of bats (*Hipposideros barbensis*, sp. nov.) flitted about circling in and out amongst the trees.

When we left—in darkness at three o'clock one morning—the anchor proved to be jammed fast in the coral. It was only by setting full sail, after all other means were exhausted, that we were enabled to break it free.

## The Tambelans.

The Tambelan group, about sixty miles to the northward, was the next place of call. With a wind abeam and a squall to help we arrived in twelve hours and anchored between two small islands, Selendang and Gilla. Exploring the former in the afternoon we got two or three birds. It possesses a curious cone-shaped hill about 700 feet high; Gilla is much lower. The scenery in the little strait between the two was very lovely—jungle and coco palms, granite boulders and yellow sand, bright blue sea and waves of white surf at the far end of the passage.

Early next morning (Aug. 4th) we boated over to Great Tambelan and met many canoes going off to the outlying islands. The sea was running very high a few hours later and the sail back again was somewhat exciting.

The Tambelan group consists of the three principal islands of Tambelan, Bunoa and Wai, with a number of smaller islands

massed fairly close together over thirteen or fourteen miles of sea. Only Great Tambelan is inhabited but on the others the people have numerous *ladangs* and *pondoks*. The population consists of Malays, 500-600 in number.

## Bunoa.

As Gilla and Selendang were too small to be productive, after one more visit we transferred operations to Pulo Bunoa close by. The islands form roughly two parallel lines lying N. E. and S. W. Bunoa is the largest of the south-western group. It is about four miles long and two and a half wide, on the whole gently rounded in contour with gradual forested hills rising to a height of 900 feet. On the northern side is a bay that offers good anchorage in the S. W. monsoon.

We tramped through the island for three days after birds and beasts. A form of "Krah" was common and from those collected here, and later on in the Anambas, a new species *Maçacus pumilus* has been described which differs from *M. cynomolgus* in being paler and much smaller. The little pied hornbill (*Anthrococeros convexus*) was numerous: their chattering resounded through the jungle like the yelping of puppies. Once in stalking them I lost my bearings and at last crossing a slight trail followed it up on the wrong hand and passing by a little stream that suddenly disapppeared subterraneously, came on a ladder path and log-slide running down a sleep hill side to a strange beach that in the end proved to be on the further side of the island. Thinking it easier to return to the boat by following the coast than by retracing my steps, I let myself in for a five or six miles scramble in mangroves and mud, over soft sand and rocks, across coral reefs and through water breast high before I found the schooner again.

Arenga palms are numerous in the jungle and are worked for sugar by the natives. The trees are tapped near the top and bamboo receptacles are fastened beneath the incisions to receive the sap. Here and there we came across the boiling-down furnaces that consisted of large flat iron pans raised above the fire on clay walls. Before concentration the sap is carefully strained through a bunch of fibre to remove impurities and is then boiled down either to a treacly consistency or to a still

greater density when it is poured into bamboo moulds and crystallizes into a dark brown sugar.

A coconut shell of the warm sweet liquid in its early stage is most refreshing during the course of a hard tramp and was always offered when we passed a concentrator at work.

## Great Tambelan.

On the 8th of August we made sail at day-break and with a native pilot crossed to Tambelan Island and anchored in the harbour three hours later.

This, the largest island of the group, is nearly 4½ miles long and roughly triangular. Near its north-east coast are several hills, the highest of which—Tambelan Peak—rises to an elevation of 1300 feet while a short distance to the eastward of it is Thumb Peak, a remarkable pointed hill 950 feet high. The island is nearly divided into two parts by an inlet of the sea which runs in a north-easterly direction into its western side. This creek is nearly a mile in width but is fringed and choked with reefs. The remains of a breakwater built of coral cross it about a mile and a half from the entrance. A stockade once ran behind this and a fort stood on the shore, all being constructed to defend the village which lies higher up, from the attacks of Illanum pirates who occasionally visited these islands years ago.

We threaded our way amongst the coral and anchored in a clear patch of water near a couple of small native schooners, well protected by reefs from any south-westerly swell and in sight of the Kampong. The conditions permitted some delightful baths in perfect safety for the Malays said crocodiles and sharks never ventured into the neighbourhood. The pilot refused money payment for his services but gladly received drugs for an ailing relative, and later when the people took to bringing us specimens they always preferred medicine of sorts by way of recompense.

We first landed on the southern side of the harbour and climbed a small hill of granite and laterite. It was covered with scanty scrub and absolutely devoid of life. A reward however lay in the view. Below the slope of the hill stretched the still green waters of the harbour, purple-patched with coral; on the further side sand, jungle and palms, while the Kampong—a

long line of brown houses on land and water, following the course of the shore—lay higher up the creek. Beyond rose the jungle and hills, with the quaintly-shaped Thumb Peak—abrupt and solitary—standing out prominently against the sky.

A white man is a bit of a curiosity in these parts and for the rest of the day it was but seldom that twenty or thirty heads were not poked through the skylight windows watching our goings-on.

Next morning we went up to the village to visit the Dato and show him a letter written by the Sultan of Linga who, under the Dutch, rules all these islands.

A roofed-in platform with benches and flight of steps forms a pleasant landing and lounging place before the village, near which was anchored a stranger vessel—a little prau about the size of our whaleboat packed with a large and unprepossessing family of Orang Laut.

From the *jambatan* we were led to the Dato. The village consists of about 250 houses threaded by tidy paths and supplied with water by numerous bamboo *penchurans* leading from the higher ground in the rear. No women were visible but from the houses came the clacking of numerous looms: good strong sarongs are made here, dyed, however, with aniline colours purchased in Singapore: indeed though Dutch possessions, the Straits dollar was the only coin current in all the islands of our cruise. Passing the mosque, a pucca triple-roofed structure of wood and stone, and a number of old cannon that lay scattered about, we reached the Dato's, a well-built shingle-roofed house, with a long enclosed verandah running its length, in which we were welcomed.

The Dato was an amiable old gentleman, treated by his people as he treated the Sultan's letter—with great respect. Chairs were arranged at one end of the room and when we took our seats the lower end was crowded by the populace while women stared through the latticed windows of the inner rooms. An official, bent double with respect, read the Sultan's hukum, which explained our object and recommended all assistance, and then the Dato and the audience descanted on the local fauna, its paucity in those islands and how much better off other places—Pahang, for instance—were in this res-

pect. On leaving, the hand-camera was brought into play for the first time and all the juveniles among our escort fled screaming.

The little community appeared to be very well off and was one of the few places remarkable for the absence of the ubiquitous Chinaman, a solitary trader of which race seemed to have been recently starved out. On the shores of the harbour twenty to thirty schooners of local construction were drawn up: these seemed to be owned by the villagers in general, and with them all the trade was done and all the produce shipped from time to time to Singapore direct.

Ship-building bulked large as an industry of the village and we saw half a dozen or more hulls from thirty to forty feet in length, in all stages of construction. These vessel are built of locally grown chengai and merbau and are fastened with tree-nails throughout. Each seemed to be the work of about a couple of men in partnership and takes two years or so to complete. A few frames are first set up and completely planked and afterwards the other ribs are fitted in until sufficient strength is attained. It was said that a 35 foot craft (10-tonner) could be purchased all complete for $350, and although perhaps their lines were capable of some improvement they were fine roomy little boats strongly built of throughly sound material. The local canoe, however, was a thing of beauty: strongly built of two prettily contrasting white and brown hardwoods without a single nail, with upward-projecting stem and stern and gaudily painted bird's-head bracket on the bow to support the lowered sail and mast, it was as workmanlike as it was handsome. The sail was a square cotton lug slung by the middle of the yard and set with the forward end of the boom snubbed down to the lee-bow well forward.

Having sent the Dato a photograph of the "Terrapin" we received a call one evening from him and his understudy to acknowledge the picture and to obtain a little medicine. Amongst other things he told us how in his boyhood the village suffered the last attack from pirates and how all the inhabitants were driven out by the raiders to a hill at the back of the island where they built a fort of refuge. In those days there were only about a hundred people on the group.

But little was to be obtained by way of supplies from the villlage. Coconuts and copra were plentiful, eggs and fowls scarce: we could get plenty of bananas and one evening bought from a canoe homeward bound from fishing, three splendid parrot fish (*Scarus sp.*), weighing together between sixty and seventy pounds for a dollar!

The jungle was intersected with paths leading to the arenga palms and trying-down sheds and by shooting along them and in the cocopalms we obtained a new squirrel (*Sciurus abbottii*), a pale form of *S. notatus*.

After investigating the birds and mammals on several occasions with good results, we devoted a morning to butterflies getting about a dozen species round the village and along the forest paths. The fauna of the island was neither numerous nor diversified and on the morning of the 15th we moved the schooner over to Pulo Wai, anchoring off its N. E. coast.

## Pulo Wai.

This island is the most north-westerly of the group. It is about two miles long and rises in several peaked hills attaining near the eastern end a height of 1000 feet. Being farther from the Kampong than the others it is least visited but plantations of coconuts and bananas, plantains, yams and sweet potatoes are common on its hillsides, a good deal of which are cleared.

It provided us with a handsome squirrel (*Sciurus mimellus* sp. nov.) with black, chestnut and white pelage—a dwarf form of the well-known *S. prevostii*.

A walk across the island proved very bad travelling but from the hills a distant view was obtained of Gap Rock about twelve miles to the northeast. This remarkable islet consists solely of two huge boulders—the larger of which is 124 feet above the water—lying on a flat platform of rock utterly devoid of soil or vegetation.

This was the last of the Tambelans visited and I will therefore conclude this notice of them with a list of the principal collections.

## Mammals.

1. Macacus pumilus, sp. nov.

2. Pteropus lepidus, sp. nov.
3. Megaderma spasma.
4. Tupaia bunoæ, sp. nov.
5. Tragulus sp. (said to occur).
6. Sciurus memellus. sp nov.
7. Scinrus abbottii, sp. nov.
8. Mus tambelanicus, sp. nov

## Birds.*

1. Gracula javanica.
2. Eulabes javanicus.
3. Calornis chalybeus.
4. Hypothymis azurea.
5. Hirundo javanica.
6. Motacilla melanope.
7. Halcyon chloris.
8. Anthrococeros convexus.
9. Cypselus sp.
10. Osmotreron bicincta.
11. Carpophaga ænea.
12. Myristicivora bicolor.
13. Chalcophaps indica.
14. Calænas nicobarica.
15. Turtur tigrinus.
16. Esacus magnirostris.
17. Totanus hypoleucus.
18. T. calidris.
19. Lepterodius sacer.

## The Rocky Islets.

Eleven miles in seven hours is not good sailing but it was afternoon when we landed on the Rocky Islets—the Pulo Mandariki of the Malays. They consist of two small barren islets and a rock. The sea is steep to all round and the schooner lay on and off with a kedge anchor hanging down while we care-

* It is interesting to note that no birds smaller than the fly catcher have effected a lodgement on the Tambelan group.

fully humoured the swell and jumped ashore on the larger of the two, which is northernmost. The central islet which is next in size is much more broken and is a wild confusion of little peaks and precipices.

Climbing to the top of our islet (134 feet) we found that quartz predominated in its formation, which presented an exceedingly rough surface where grew here and there only the scantiest tufts of coarse grass. Two or three dead bushes crowned the summit and everywhere the ground was fouled with the guano of sea-birds that use the rocks as a breeding place.

The air was full of squalling, squawking, croaking gulls and among the crevices of the island's surface we discovered numbers of nestlings, and a few eggs all addled. The birds were of two kinds:—a black noddy with grey head (*Anous stolidus*) and a tern (*Sterna* sp.) with black head and wings, grey back and grey-white breast. The remaining fauna included fishing-eagles, crabs and a solitary bee. The mid-day sun, shining down on the bare rocks, made the heat, combined with the scent of the birds, overpowering and we soon left, having knocked over sufficient specimens for the collection in a very few minutes.

## Saddle Island.

Instead of proceeding straight to the Anambas we stopped for a night and morning at Pulo Kayu Ara, a little island about half a mile long covered with jungle and thus contrasting strongly with the place we had just left. It is nearly 400 feet high and is formed of two round hills having a dip between that make together a contour from which it has gained its English name.

The feet of the hills were fringed with black rocks but between lay a delightful little beach inhabited by a pair of white-collared kingfishers, on which we landed and found the laying places and tracks of turtles: the sea, of wonderful limpidity invited to a bath. The only birds seen in the forest were fruit pigeons and glossy starlings,—the only terrestrial mammal a squirrel (*Sciurus klossii*), a small blue-bellied member of the *notatus* group. The trees bore considerable quantities of fruit,

particularly noticeable being wild nutmegs and mangosteens, the last of which seemed to form the principal food of the squirrels. To complete the tale of our acquisitions were the small fruit bat (*P. lepidus*) previously taken in the Tambelans, some geckoes and two or three tree-snails.

Waiting until the tide turned in one favour we left in the afternoon, bound for the Anambas, a hundred miles away. Until sunset next evening the wind held light but then with a series of squalls coming up from astern we made from six to seven knots an hour, the breeze constantly shifting a point and back and compelling us to make continual gybes. Late at night we entered the channel between Pulos Peling and Riabu and dropped anchor close to the former.

## The Anambas Islands.

On the morning of the 17th it was evident that we were fortunate to have anchored when we did; for dead ahead, just a hundred yards away, an abrupt bit of coral reef on which the schooner could have piled up very awkwardly, lay five or six feet beneath the surface.

Pulo Peling, which we worked for a day, is only a small island without inhabitants where clearings were just being commenced; we saw no mammals except many monkeys, but got a little blue brown flycatcher (*Cyornis tickelli*) with reddish breast for the first time on the cruise.

Riabu, which we next prospected, is much larger, being high and about six miles in length. It possesses a very good bay affording excellent harbourage in the S. W. monsoon as it is only open between N. and W. As we rowed along the shore we shot a large "baiawak" from the boat and then landing found the country very rocky and densely covered with forest. Our best catch was a squirrel—the only one seen—a pale and rather small form of *Sciurus notatus*. It has been named *anambensis* and occurs on most of the islands of the Anambas group but the Riabu specimen differs from the others in having the audital bullæ markedly smaller.

At daylight on the 19th there was scarcely a breath of wind and after getting up anchor we nearly drifted on to the reef

through which we had so nearly come to grief before, but missing it with the rudder by a bare yard we soon afterwards got a fair breeze and, running past eight or ten small islands, made Terempa, which is the chief kampong of the Anambas, by 2 p. m.

The Anambas Islands are situated in lat. 3 N., long. 106 E. and extend over an area 65 geographical miles long N. and S. and 55 miles wide. They practically form two groups of which, though the western includes the larger island, the other is greater in area. All the islands are hilly, covered with forest, and afford numerous bays and channels where safe anchorage may be found in spite of the coral reefs that occur everywhere. Although the population is mainly confined to the larger islands, Malays are thinly scattered over most of the rest and there are Chinese Settlements in either group.

## Siantan.

Terempa lies in a little bay on the north coast of Siantan which is the largest of the easterly Anambas, having probably an area of about 20,000 acres: it is densely covered with heavy forest, is very hilly and rises 1855 feet.

The kampong is a thriving little place with a Chinese cemetery, twenty or thirty Chinese shops with galvanised iron roofs and a good proportion of its population Chinese. A small steamer the "Banka" calls once or twice a month and yet it is against these islands that the dear old China Seas Directory (3rd edition) still contains the antediluvian warning that "it is dangerous to land without due precaution, for the Malays who reside on them may probably massacre or make slaves of strangers if they perceive a convenient opportunity." *A propos* of this sort of thing I remember once asking a Danish sailor whom I met on the other side of Sumatra whether he used the English Admiralty publications for these seas, but the skipper of that very old-fashioned little barque the "Hans of Fano" shook his head and replied that he always consulted certain continental sailing directions as our own were far too obsolete and scrappy.

Terempa is built along the head of the bay and has a small saltwater creek opening out behind it. As one faces it from seaward an orderly street of Chinese stores with the opium-farmer's place and a Chinese school lie to the left with a few

Malay houses at the far end. In the centre is the Dato's house —a wooden building in civilised style; a large house belonging to the Sultan of Linga and then stretching away on the right the houses of the bulk of the Malays: behind the flat on which the village is built, hills covered with jungle and coco palms rise steeply in a half circle, the whole having a very pretty effect which, however, is quite matched by the view presented from behind the town from whence looking down the long slope of the hill one sees the roofs of the houses, the semi-circular bay with boats lying at anchor, and then across a strip of water the forested hills that rise opposite.

A mile and more to the north of Siantan lie the two fairly large islands of Mobur and Mata with a channel about a mile wide between them. Between Mata and Siantan runs a very pretty strait which although obstructed by many islets and shoals at its eastern end, has deep water in the west where Terempa Bay is situated. Not only in the latter itself can a vessel lie in deep water sheltered from all winds, but beyond the point forming its eastern shore is another bay where a ship can anchor in 10–15 fathoms near the beach, entirely land-locked. Better harbours on a small scale could not be wished for and wood and water are close at hand.

The Dato of Terempa was in an advanced state of consumption and in spite of possessing a new and rather showy house lived in a second more modest dwelling. He showed us specimens of black iron ore of which large quantities were said to occur in the hill behind the village.

We could get various supplies here, thanks to the presence of the Chinese; extremely good coconuts* were plentiful and water was at hand in a large pool on the beach. The only practicable shooting ground near at hand was mostly covered with small scrubby jungle in which we shot squirrels and a number of fairly common birds and trapped plenty of rats. I met with

*This group of islands would appear to be a convenient place for obtaining seed nuts to form a coco-palm plantation. The Malays always maintain, and apparently with some show of reason, that island nuts are far superior to those of the mainland. Some of the Anambas nuts are very good, in fact, almost equal those of the Nicobars: though small, they are extremely sweet and the deposit of flesh is very thick.

bees in this place and was put out of action for a day or two in consequence, for while chopping at a liana that crossed the path I disturbed a swarm that were clinging to it a little to one side. They were about me in an instant and though by retreating to the sea at an unaccustomed pace I shook off the majority, nevertheless those that had secured a hold made things sufficiently painful and my right hand and arm were so swollen that for a time I could do nothing with them.

The canoes of these islands were very similar to those of the Tambelans; they differed principally in having a much higher stem and stern and were shallower, lighter and narrower, with much less beam forward than aft, and they were propelled with a double-bladed paddle. The sampan used by the Chinese was of a very bulky model with an elongated and upward pointing prow: it sailed under a battened dipping-lug.

Having been told by a son of the Sultan of Linga who was staying in the village, of a large waterfall on the east side of Siantan we set out at sunrise one morning to visit it in the whale-boat. The wind was dead ahead and we had to pull all the way—about eight miles—but the result was well worth the labour. The way lay right up the channel between Siantan and Mata, then a short distance down the east coast and finally an approach by a passage through mangroves that enabled us to bring the boat to the very foot of the falls themselves. Bordered by jungle these fell in a series of cascades down a bare strip of rock about 400 feet high. There were twelve or thirteen falls in all and their chief charm lay in their variety—broad ribbons of foamy water slithering over smooth faces of rock, long threads dropping uninterruptedly from a height, and series of little cascades tumbling down flights of stone steps, while here and there in between were delightful cool-looking pools, seeming so inviting after our hot row that we feet compelled to have a swim, following the example of the fish that had somehow found their way there.

The raja had agreed to accompany us but was late in setting out, though he arrived before we left and we both started together to sail back, as this time the wind was fair. We were not long in company however, for the other boat—curiously, built in Singapore in the same yard as our own—a little larger

and with more sail soon left us behind and we reached home badly beaten.

The days between August 24th and September 5th were passed in visiting the northern island but on the latter date we sailed round Siantan and the islands extending from its south-east extremity since the channel on the north was untraversable, drifting on a reef on the way in a calm but easily getting off by the use of a kedge anchor, and in the evening putting in at Telok Ayer Bini, a bay on the sonth coast partially protected by an island at the entrance.

The shores rose very steeply and were uncleared except in one or two places where the people of a house there had made gardens and planted hill rice. It was hard work climbing about the slopes which were rendered excessively slippery by rain that continued incessantly throughtout our stay. A stream with two arms ran into the head of the bay and up one we rowed until stopped by a small cascade, while the other was merely an almost dry bed of granite boulders.

The wretched weather made specimens scarce and after three or four unprofitable days we sailed on our final visit to Terempa. Four more days were spent here working fresh ground and making fairly good collections of mammals and birds and then we left for Pulo Telaga to the westward.

## Mobur.

The 24th of August was the first day of our stay at Mobur Island, about 5 miles to the northward of Siantan. Like all the Anambas it is hilly with a broken surface covered with forest, and on the south it is cut into by a narrow gulf with an islet at the entrance; a notable feature of the western group is the number of these inlets and narrow channels that occur. Good as the harbour was with depths of 12 or more fathoms we passed up the strait separating Mobur from the larger Mata and anchored in a big bay on the north side, landlocked for more than three quarters of its perimeter. Four or five miles seawards we could perceive the Tokong Belauer, a remarkable white rock bearing at a distance a most extraordinary resemblance to a modern battleship. We found coco palm and banana plantations on the island but very few inhabitants, for the people

are mainly confined to Terempa and only isolated settlers occur elsewhere.

One afternoon we rowed to a little island in the bay called Langor. It was only about 100 feet high and consisted of sand and rocks covered with scrub and a few coco palms. Everywhere the ground was strewn with pigeon's feathers and by waiting we found that large flocks of the orange-breasted pigeon (*Osmotreron bicincta*) came off at sunset from surrounding islands and used this spot as a roosting place in company with smaller numbers of glossy starlings and nutmeg pigeons. The whirring noise made by the wings of the flocks as they flew round and round the island, disturbed by our shots, was very great and continued until we departed with bags stuffed with birds that appeared later in a most delicious stew.

## Kelong, Manguan and Tobing.

We next sailed round the north end of Mata and anchored between it and Pulo Kelong, a narrow island about 5 miles long in a N. and S. direction and less than a mile wide: the ground sloped upward to a ridge 600–700 feet high and every where the soil and jungle were very poor. Most of the channel dividing Kelong from Mata is filled with sand banks and coral, dry at low tide. Fishing-stakes had been set up here and there by the Malays but to us the place proved a good ground for the common shore birds of this region and we also collected a number of beautiful starfish while our crew hunted for trepang and chopped tridacnas out of the coral. Other animal life was scarce and we soon moved southward to Pulo Manguan, a small island shaped like a dumb-bell, flat and swampy in the centre; but doing no better there, anchored the schooner off Tobing, an islet near the eastern entrance of the Siantan channel, and from thence again visited the waterfall, and next day, previous to sailing for the south of Siantan, rowed to Terempa and back for our mails.

## Telaga.

The second stay at Terempa concluding on the 13th of September we made for Jimaja, the chief of the westerly Anambas, first however after a few hours sail stopping about mid-way, at a group of small islands of which Telaga is chief. This is a

norrow hog-backed island about 5 miles long N. and S. with a picturesque peak rising 1740 feet near its northern end. We spent a couple of days here and on the neighbouring island of Midai finding the forest fairly open except for patches of rattans and a prickly holly-like shrub. Only one village of three or four houses was seen. The coconuts seemed much troubled with squirrels and the people made use of an ingenious trap set on a long bamboo leading from the jungle to the palm trunks.

## Jimaja.

On the 16th we made sail at daybreak and rounded the southern end of Telaga. The wind was ahead but we did most of the seventeen miles, which is the distance between that island and Jimaja, in one board and then working short tacks got close to the entrance of Kwala Maras Bay on the east coast by nightfall. After that the wind fell light and the tide carried us away to the northward so we let go the anchor in 10 fathoms about three-quarters of a mile from shore and next morning after a couple of hours beating got into the bay. A line of rocks extends above water from the north shore and beyond them on the other side is a coral reef: we found a good berth between the two, well protected from all but easterly winds.

Jimaja is the largest of the Anambas with an area of perhaps 30,000 acres. It is of an irregular Y-shape about 14 miles N. and S. and 9 miles wide. The contour is very uneven and there are many peaks between 700 feet and 1530 feet, the greatest elevation attained in Gunong Tujoh. The irregularity of the coast line has resulted in many bays, the largest being in the north and in the south-east, but Telok Kwala in the centre of the east coast, although smaller than these is the most important as having the greatest population and being the port of call of the steamer. Its shores rise steeply to heights of 1000 feet in places free from forest, but beyond the head where a river embouches is some flat swampy land overgrown with mangroves.

The kampong lies on the north shore and consists of thirty to forty houses, a small mosque, the Dato's house and the buildings of the opium-farmer—shop, godowns, etc., surrounded by a stockade 8-10 feet high closely built of small saplings from whence ran a small jetty.

The Dato's was a well built house, the largest in the place, with a flag staff in front. We were given the rarely used chairs brought out, as always, from somewhere in the roof and seated on these awaited the Dato who was making himself presentable. He was a rather big man with an Irish countenance and wore a "baju tangan kanching" having a ridiculous resemblance to the obsolete night shirt, and a purple smoking cap whose large black tassel persisted in lying in his right eye. There were only a few people in the audience and after the Dato had stumbled through the Sultan's letter and the scholar of the party recorded our visit in the brown-paper-covered archives of Jimaja, conversation took a zoological turn and we were told also of two deep lakes with waterfalls that existed up in the hills of the interior, the description being such as to give one an idea of something impressive.

We collected first on the south side of the bay with no great result; the ground was very steep and difficult and the forest small having evidently been cleared at some former period. However, a new species of rat—*Mus flaviventer*—was obtained and we came across parrots (*Paleornis longicauda*) for the first time. Every day flocks crossed the bay and passed near the summit of some steep rocks where I several times lay hid in the vain hope that they might stop. It was interesting to note how the parrots' call as they flew by always drew a loud response from all the small birds roosting in the bushes.

On the other side of the bay we found a good path running for some distance through a former mangrove swamp now planted with coconuts, and afterwards up hill amongst most beautiful jungle. It crossed two small streams of perfectly clear water one running among granite boulders and the other, about a foot deep, in a smooth sandy bed. Toward midday nothing was more pleasant after five or six hours' tramping in the forest than to find a round stone for pillow and recline full-length in the flowing water of the latter until thoroughly refreshed by its coolness. But beside providing pleasure of this sort we also obtained good specimens along its banks.

Our third collecting ground was along the river falling into the head of the bay. At first this was bordered by broad growths of tall mangrove, but after a mile or so where the current

began to make itself felt these ceased and the vegetation became more varied with interminglings of nipahs, palms, and fruits trees. Onward from here the stream—the Sungei Maras—runs up the centre of a winding valley with a narrow strip of flat land at the bottom and steeply rising sides. At the head of navigation—and in fact when the tide was low we had to wade with our dinghy for some distance, though all the way the stream was broad enough to use oars—was a village of eight or ten houses and a mosque, one or two of the former being of large size and well built of panels of carved wood, though now old.

In the valley we got specimens of the parrots at last as they fed in the fruit trees bordering the river, and also a lovely little two-toed kingfisher (*Ceyx rufidorsa*) with coral red beak and feet, yellow breast and brick red head and back that were tinged with a beautiful glossy lilac: the best of the bag however were specimens of a big squirrel (*Ratufa anambæ* sp. nov.) black above with tawny yellow cheeks and underparts. It weighs about 3¼lbs with a total length of 33 inches of which head and body are 15 inches: thus, contrary to the general rule, it is an insular race characterised by increase of size. In these China Sea islands it is found that when a species of mammal occurs in a solitary island, however small that may be in area, it is confined to that island alone, but when a species is present on an island of a group it will generally be obtained throughout the group. In the case, however, of the *Ratufa* of Jimaja this is not so; it was neither reported nor did we find it ourselves on any other of the Anambas.

On the 25th we set out early in the morning with the intention of seeing what truth there was in the report given us of the "telaga" in the centre of the island. The first stage was to the village up river—Kampong Ayer Maras—where the Penghulu provided us with a guide. While waiting for the latter we inspected a small waterfall about 20 feet high at the back of the village. It was not much to look at however as there was very little water in it at the time. We were then told that there were two series of lakes, so voted for the larger set and when the guide arrived started him off accordingly.

The path traversed sago swamps for the greater part of the way and was very muddy; then passed through a small kampong surrounded by fruit trees and soon after that through a stream

where a sago-making apparatus was erected, next came thickets of dense scrub followed by another sago plant where a number of men were at work. Now the track degenerated into a muddy ditch knee deep for the most part and after crossing several brooks we came to the bank of a small river with a clean sandy bed. When we had waded upward for some distance the bed became rocky and we then soon reached the "lakes." These were disappointing being merely large rocky basins in the river bed about 60 feet long and 30 feet wide and, as we found by diving, 17 or 18 feet deep. They were connected by a fall and there was a second above the upper pool both some 30 or 40 feet high. The water was perfectly clear and the whole very pretty, rock and water being shaded and hedged in by dense jungle, nevertheless the actual state of affairs was not quite the phenomenon it had been painted by our informants.

We found the steamer in the bay when we got back and her serang came off with a message from the commander that we had stolen his anchorage! As however we had been there some time and the other was still under steam we returned word that we felt no inclination to move; thereupon the steamer's master obstinately took up a berth a few yard off until he swung with the tide when, our main-boom end doing considerable damage to his bridge dodger, he was persuaded to seek a more convenient anchorage.

Both in the Tambelans and in Siantan we had made efforts to get one of the canoes of the place without avail, people did not want to sell or would not be ready in time. Here as a last chance one of the built up kind was to be had for $40, though graceful dugouts on exactly the same lines were just half that while rough models could be purchased for as little as $3. One canoe, a good example of the type—was brought alongside with the sail lightly rolled up and bound round and round with every conceivable cord; undoing this tangle of course showed the cotton to be mildewed and full of holes and the chagrined vendor was sent off for another. There was further trouble in concluding the purchase as the islanders would not accept either Dutch coin or Singapore notes and we had run completely out of Straits money. Happily a couple of Tringanu men visiting the island in a small prau were willing to change our notes on condition that

we invested in sarongs from their trade-stock. Having with the assistance of these men—who contrasted greatly with the islanders in many ways—brought the canoe business to an end we left Jimaja on September 28th and sailing round the south of the island reached Singapore on October 8th via Tiuman where we spent a few days.

The principal result of our visit to the Anambas lay in the first record of the animals and birds found in them, an outcome of our investigations being also the description of many new insular species. So far as is represented by the collections the mammal fauna of these and of the other islands visited consists of local forms of the widely distributed and characteristic Malayan types. Each island and group of islands has its representative of the common genera and species; but in scarcely an instance is an insular race identical with that occurring on another island, unless of the same group, or on the mainland.

## Mammals of the Anambas.

Macacus pumilus.
Nyctecebus tardigradis.
Emballonura anambensis, sp. nov.
Rhinolophus minutus, sp. nov.
R. rouxii?
Tupaia chrysomella, sp. nov.
Paradoxurus, sp. (reported).
Tragulus, 2 sp. (reported).
Sciurus anambensis, sp. nov.
S. tenuis.
Funambulus castaneus, sp. nov.
Ratufa anambæ, sp. nov.
Mus siantanicus, sp. nov.
M. strepitans, sp. nov.
M. anambæ, sp. nov.
M. flaviventer, sp. nov.

## Birds.

The birds obtained were all common peninsular forms and are enumerated below.

Malacopterum magnirostra.

Anuropsis sp.
Mixornis gularis.
Ægithina viridissima.
Pycnonotus simplex.
Iole sp.
Dissemurus platurus.
Orthotomus atrigularis.
Lanius cristatus.
Eulabes javanensis.
Calornis chalybeus.
Hypothymis azurea.
Cyornis tickelli.
Cittocincla macrura.
Munia semistrata.
Hirundo gutteralis.
H. javanica.
Motacilla melanope.
Anthothreptes rhodolæma.
Æthopyga siparaja.
Æ. basselti.
Dicæum trigonostigma.
Halcyon bengalensis.
H. chloris.
Ceyx rufidorsa.
Cypselus subfurcatus.
Collocalia fransica.
Macropteryx longipennis.
M. comata.
Rhamphococcyx erythrognathous.
Graculus sumatrensis.
Palæornis longicauda.
Loriculus galgulus.
Spizaëtus or Spilornis sp. (observed).
Haliaëtus leucogaster.
Osmotreron bicincta.
Carphophaga ænea.
Myristicivora bicolor.
Calænas nicobarica.
Chalcophaps indica.

Charadrius fulvus.
Ægialitis sp.
Esacus magnirostris.
Totanus calidris.
T. hypoleucus.
Strepsilas interpres.
Tringa hypoleuca.
Fregata aquila (observed).
Anous stolidus.
Sterna bergii.
S. media.
Lepterodius sacer.
Buteroides javanicus.

## Literature.

China Sea Directory Vol II.

Mammals collected by Dr. W. L. Abbott in the region of the Indragiri River, Sumatra, by Gerrit S. Miller, Jr., Proceedings of The Academy of Natural Sciences, Philadelphia, March, 1902.

Mammals collected by Dr. W. L. Abbott on Islands in the South China Sea, by Gerrit S. Miller, Jr., Proceedings of the Washington Academy of Sciences, August, 1900.

# A List of the Butterflies of Borneo with Descriptions of New Species.

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## Part I.

(Danainæ to Amathusiinæ).

Only three lists of the butterflies of Borneo that can pretend to any completeness have been published hitherto. One by Messrs. Distant and Pryer appeared in the "Annals and Magazine of Natural History" 1887; another by Messrs. Pryer and Cator in the "British North Borneo Herald" of 1894—a list remarkable for the number of *nomina nuda* contained in it, and a third by Mr. E. Bartlett in the "Sarawak Gazette" of 1896, reprinted in the "Zoological Note-Book of Sarawak" by the same author. All three lists are now out of date and many new species have been described even since the compilation of the last one; for example Mr. Bartlett records only 139 Lycænidæ, whereas the number of species of this family now known from Borneo just exceeds 300. Consequently I feel justified in adding to the literature on Bornean Lepidoptera, especially as I do not expect that many more discoveries of new species will be made in the future in an island that has been so well explored faunistically as Borneo; in short, this list has some claim to completeness and finality.

A few new species are described for the first time, and as considerable trouble has been taken in consulting all available literature on Oriental butterflies and as most of the specimens have been referred to Dr. A. G. Butler and Mr. F. A. Heron, of the British Museum, and by these well-known authorities de-

clared to be in every probability undescribed, I trust that my new species are really "good species."

The question of nomenclature has been rather a difficult one; the systematist has to steer between the Scylla of "lumping" and the Charybdis of "splitting," for to regard all geographical varieties (topomorphs) of a wide-spread species as identical is unscientific, to regard each variety, on the other hand, as a separate species is almost equally unscientific and, further, tends to obscure the problems of geographical distribution. There is a third alternative and that is, to adopt the cumbersome trinomial system, distinguishing well-marked topomorphs of a wide-spread species as sub-species, giving them separate names* and noting the distribution of the species as a whole. Such is the method adopted in this list; a species is recorded, if the typical form occurs in Borneo that fact is noted and the distribution of the typical form and the sub-species (component parts of a species) occurring outside Borneo are also noted; if the typical form does not occur in Borneo, the name of the sub-species that does occur follows the name of the species and the distribution of the species as a whole is recorded.

Unfortunately some of the families of butterflies have not been studied so thoroughly as others, whilst some families again have been studied from a different point of view to others: for example, Messrs. Elwes and Edwards in their "Revision of the Oriental Hesperiidæ" (Trans. Zool. Soc Vol. XIV part IV, 1897), do not allow a single sub-species, whereas Hon. W. Rothschild and Dr. K. Jordan in their memoirs on the Papilioninæ and on the Nymphaline genera, *Eulepis*, *Charaxes*, etc., regard every topomorph of a wide-spread species as a sub-species and this to my mind appears to be the more scientific method. Much work along these lines still remains to be done, but it can be done only by one who has frequent access to extensive collections and well-stocked libraries, therefore though this list lays claim to some completeness so far as an *enumeration* of the forms of butterflies

* For an able exposition and defence of the trinomial system of nomenclature see Novitates Zoologicæ Vol. IX. Supplement, 1903, pp. xxvi et seq.

occurring in Borneo goes, it does not claim in every instance to discuss the relationships between these Bornean forms and close allies inhabiting other areas.

At the end of this list will be given a table showing at a glance the geographical distribution of the various species. A few field notes are put in square brackets after the records of distribution of the respective species.

I am indebted to Mr. F. Moore and to Herr H. Fruhstorfer for their kind help; the late Mr. L. de Nicéville was a most valued correspondent whose sound advice and generous aid I sadly miss now.

## LEPIDOPTERA RHOPALOCERA.

### Fam. NYMPHALIDÆ.

### Sub-fam. DANAINÆ.

### Genus *Hestia*.

1. ***Hestia lynceus***, Drury.

*H. lynceus*, Drury. Illustr. Exot. Ent. ii. pl. 7 f. 1 (1773).
*H. reinwardti*, Moore, P. Z. S. 1883, p. 218.
Sub-sp. *H. lynceus drurgi*, Moore, with a melanic form *fumata*, Fruhst.

Fruhstorfer (Berl. ent. Zeitschr. Bd. xlii. p. 314. 1897) divides *H. lynceus* into five sub-species occurring in Malacca, Penang, Singapore, Nias, Sumatra, Mentawei Is., Natuna Is., Borneo and Java. The species is a common one and the Bornean sub-species with its melanic form is distributed throughout the island; *H. lyn. drurgi* occurs also in Sumatra and the Natuna Is.

[Two males were observed courting a female in the jungle at Santubong: the female was situated on a leaf about 12 feet from the ground, over her a pair of males fluttered with a peculiar short up-and-down flight as if they were sliding on perpendicular wires; the female slowly opened and closed her wings but otherwise remained immoveable for about three minutes when she suddenly dashed off with the males in hot pursuit, and all three were soon lost to sight].

2. *Hestia belia*, Westw.

*H. belia* Westwood. Cab. Orient. Ent. pl. 37. fig. 2

Sub-sp. *H. belia hypermnestra*, Westw.

Sub-sp. *H. belia belina*, Fruhst.

The typical form of *H. belia* occurs in Java and Sumatra, the two sub-species mentioned above in Borneo, another (*H. bel. linteata*, Butl.) in the Malay Peninsula, and a fourth in Java. Distant (Rhop. Malay p. 406) records *H. linteata*, Butl. from Banjermassin, but this is probably the same as sub-sp. *belina*.

Genus *Nectaria*.

3. *Nectaria leuconoë*, Erichs.

*Idea leuconoë*, Erichs. Nova Acta. Ac. Nat. Cur. xvi p. 283 (1834).

Sub-sp. *N. leuconoë nigriana*, Grose-Smith.
North Borneo, Taganac Island.

Sub-sp. *N. leuconoë chersonesia*, Fruhst.
South Sarawak, Malay Peninsula, Singapore and adjacent islands, Billiton.

Sub-sp. *N. leuconoë natunensis*, Swell.

I am not at all certain that the varieties and local races of this species are all worthy of sub-specific rank; *Natunensis* in especial seems to possess no well-marked characteristics. In the Sarawak Museum collection there is a male from Buntal, Sarawak, which might be either *nigriana* or *natunensis* and a female from Trusan, N. Sarawak is intermediate in character between *nigriana* or *chersonesia*. Other sub-species occur in Japan, Philippines Palawan, Talaut, Sangir, Java, Engano.

The species frequents the sea-shore.

Genus *Ideopsis*.

4. *Ideopsis daos*, Boisd.

*Idea daos*, Boisduval, Spec. Gén. Lep. I, pl. 24. f. 3 (1836).

Borneo and Lingga Archipelago, with sub-species in, Singapore, Penang, Malay Peninsula, Sumatra, Niasi China, Hongkong.

The Natuna island forms appears to belong to another sub-sp. *I. daos perakana*, Fruhst.

[This common and distasteful species is mimicked by a Chalcosiine moth, *Isbarta pieridoides*, and by the female of *Papilio delesserti*].

Genus *Danais*.

Sub-genus *Radena*.

5. *Danais* (*Radena*) *vulgaris*, Butl.

*Danais vulgaris*, Butler., Entom. Month. Mag. xi, p. 164, (1874).

A common and widespread species, occurring in Singapore, Malay Peninsula, Sumatra, Java, Nias and Natuna Islands.

[This species and *Parantica eryx*, Fab., are mimicked in Borneo by the following butterflies :—*Elymnias lais*, ♂, *Euripus halitherses*, ♂ and *Papilio megarus*].

6 *Danais* (*Radena*) *juventa*, Cram.

*Papilio juventa*, Cramer. Pap. Ex. ii, pl. 188 B. (1779).

A common sea-side species, ranging nearly all over the Malay Archipelago.

Sub-genus *Tirumala*.

7. *Danais* (*Tirumala*) *septentrionis*, Butl.

*Danais septentrionis*. Butler, Ent. Month. Mag. vol. xi, p. 163, (1874).

Occurs also in India, Ceylon, Burma, Siam, Malay Peninsula, Java, Sumatra, Formosa.

Mimicked in Borneo by :—*Papilio macareus macaristus*.

8. *Danais* (*Tirumala*) *microsticta*, Butl.

*Danais microsticta*. Butler, Ent. Month. Mag. vol. xi, p. 163. (1874).

Occurs also in Java and Nias.

Fruhstorfer considers this to be merely a sub-species of *septentrionis*.

Sub-genus *Limnas*.

9. *Danais* (*Limnas*) *chrysippus*, L.

*Papilio chrysippus*. Linnæus. Mus. Ulr. p. 263, (1764).

[This very widely distributed insect is common in N. Borneo but of extreme variety in the more southern parts of the island; it is interesting to note that the females of *Hypolimnas misippus* which mimic it very closely are hardly ever met with except in N. Borneo though the males are somewhat less rare in the southern part of the island; in other words, the local distribution of the mimics closely follows that of the model].

Sub-genus *Salatura*.

10. *Danais* (*Salatura*) *plexippus* L.

*Papilio plexippus*, Linnæus Mus. Ulr. p. 262, (1764).

Sub-sp. *D. plexippus intensa*, Moore.

The typical form ranges from Japan through India to the Nicobars, it occurs also in the Philippines. The sub-species *intensa* occurs only in Borneo, Nias and Java; another sub-species is found in Malacca, Singapore and Sumatra.

11. *Danais* (*Salatura*) *melanippus*, Cr.

*Papilio melanippus*, Cramer, Pap. Exot. ii. pl. 127 fig. A. B. 1779.

Sub-sp. *D. melanippus hegesippus*.

Fruhstorfer (l. c. 1899 p. 74) has united these two old species. The typical form of *melanippus* he restricts to Java, Nepal, Assam and Penang? (fide Marshall and de Nicéville). The form *hegesippus* occurs in Sumatra, Singapore, Natunas, Malay Peninsula, Penang, Billiton, Mergui Is., and is now recorded for the first time from Borneo. Another sub-species occurs in Burma, Orissa and Bengal.

12. *Danais* (*Salatura*) *lotis*, Cr.

*Papilio lotis*, Cramer, Pap. Exot. p. 111, pl. 230, Fig. D. E. (1777).

The typical form is confined to Borneo, sub-species occuring in the Philippines and Celebes.

Sub-genus *Bahora*.

13. *Danais* (*Bahora*) *aspasia*, Fab.

*Papilio aspasia*, Fabricius, Mant. Ins. ii, p. 15, n. 145 (1787).

Ranges from Burma, to the Philippines and Banca.

[Mimicked by the female of *Nepheronia lutescens*.]

*D.* (*Bahora*) *cleona*, Cram., is a Moluccan species and has been wrongly recorded from Borneo. I cannot agree with Fruhstorfer in regarding *D. aspasia* as merely a sub-species of *D. cleona*.

Sub-genus *Parantica*.

14. *Danais* (*Parantica*) *eryx*, Fab.

*Papilio eryx*, Fab. Ent. Syst. Suppl. p. 423. (1789).

Occurs in Borneo with a sub-species in Nias.

Sub-genus *Caduga*.

15. *Danais* (*Caduga*) *crowleyi*, Jenner Weir.

*Caduga crowleyi*. Jenner Weir. Entomologist, 1894, p. 109.

The species is confined to Borneo, occurring on Mts. Kina Balu and Penrissen. Fruhstorfer considers this to be merely a sub-species of *D.* (*Caduga*) *melaneus*, Cr., but this must be quite wrong for *D. melaneus* is a typical Caduga, with both patches of scent-scales on the hind-wing traversed by a lengthened swelling of the vein (cf. Moore, Lepidoptera Indica, p. 60). Whilst in *D. crowleyi* only the patch on the sub-median vein is so traversed, the patch on the internal vein is almost obsolete, whilst that on the lower median vein is large and spatulate as in *Parantica*; in short *D. crowleyi* is not a true Caduga at all.

16. *Danais* (*Caduga*) *luzonensis*, Feld.

*Danais luzonensis*, Felder, Wien. Ent. Mon. iv. p. 398. n. 17 (1860).

Sub-sp. *D. luzonensis præmacaristus*, Fruhst.

From N. Borneo. (Mt. Kina Balu) and Mt. Penrissen. The Bornean form has been confused with the Javan *Caduga larissa*, Feld., another sub-sp. of *luzonensis*; other sub-species occur in the Lesser Sunda Is., Sumatra and the Malay Peninsula; the typical form is confined to the Philippines and Palawan.

[The species was common on Mt. Penrissen and often flew in company with *Caduga crowleyi*; *Elymnias lais* ♂ mimicked both species.]

Genus EUPLŒA.

Sub-genus *Menama*.

17. *Euplœa* (*Menama*) *lorzæ*, Moore.

*Menama lorzæ*, Moore, P. Z. S. 1883, p. 265, pl. 31, fig 5.

Occurs in North Borneo only.

Sub-genus *Tronga*.

18. *Euplœa* (*Tronga*) *crameri*, Lucas.

*Euplœa crameri*, Lucas, Rev. Zool. 1853, p. 318.
*Tronga brookei*, Moore, P. Z. S. 1883, p. 268, n. 8.
*Tronga labuana*, Moore, l.c. p. 268, n. 9.
*Tronga daatensis*, Moore l.c. p. 268, n. 10.

I agree with de Nicéville & Fruhstorfer in uniting the Labuan and Daat Is. forms with the mainland species *crameri*, and with de Nicéville in sinking *brookei* as another synonym. *E. crameri typica* is confined to the Philippines, Borneo and the Natunas, with doubtful sub-species ranging from India to all the Sunda Islands.

[This and the following species are mimicked by:—*Hypolimnas anomala* ♀, *Elymnias pellucida*, *Papilio paradoxus telesicles* ♀ ab. *russus* and ab. *leucothoides*, *Papilio lencothöe ramaceus* and the Chalcosiine moth *Isharta maculuria*.]

19. *Euplœa* (*Tronga*) *bremeri*, Feld.

*Euplœa bremeri*, Felder, Wien. Ent. Monat. iv, p. 398, n. 16 (1860).

*Tronga pryeri*, Moore, P.Z.S. 1883, p. 269.

The differences between specimens in the Sarawak Museum of *E. bremeri* (*E. Marsdeni*, syn.) from Singapore and *E. pryeri* from British North Borneo are so small and so inconstant that I have no hesitation in writing the two species under one name. Fruhstorfer divides the Trongas into two groups:—

1. Hindwing with a prominent row of submarginal dots.
2. Hindwing with a double series of very large clear white spots.

In the former group he places *E. bremeri*, as a subspecies of *E. Crameri*, in the latter he places *E. pryeri*, yet all the specimens of *E. bremeri* that I have seen should be placed in group 2. In any case the species is rather a doubtful one. It ranges from India through the greater part of the Indo-Malayan region.

Sub-genus *Adigama*.

20. *Euplæa* (*Adigama*) *scudderi*, Butler.

*Crastia scudderi*, Butl. Journ. Linn. Soc. Zool. xiv, p. 297 (1878). Confined to Borneo.

[Mimicked by the *Chalcosiine moth*, *Amesia hyala*].

Sub-genus *Penoa*.

21. *Euplæa* (*Penoa*) *uniformis*, Moore.

*Penoa uniformis*, Moore, Lepid. Ind. vol. i, p. 99 (1890). Confined to Borneo; possibly only a sub-species of *E. alcathöe*. God. or *E. ménétriésii*, Feld.

[Mimicked by *Elymnias lutescens* and *Mimeuplæa tristis*].

22. *Euplæa* (*Penoa*) *zonata*, Druce.

*Euplæa zonata*, Druce, P.Z.S., 1873, p. 338. Confined to Borneo.

[Mimicked by *Papilio slateri hewitsoni*].

23. *Euplæa* (*Penoa*) *masina*, Fruhst.

*Euplæa* (*Penoa*) *masina*, Fruhstorfer, Berl. Ent. Zeit. XLII, 1897, p. 16. Confined to Borneo.

Sub-genus *Trepsichrois.*

24. *Euplæa* (*Trepsichrois*) *claudius* Fab.

*Papilio claudia*, Fabricius, Gen. Ins. p. 263, (1777).

Sub-sp. *E. claudius mulciber*, Cr.

The typical form occurs in India, Burma, Siam, Malay Peninsula, Sumatra and some of the lesser Sunda Island; the sub-species *mulciber* is confined to Borneo, other sub-species occur in Southern India, Java, Nias, Mentawei Island and the Philippines.

[The pupa is a most brilliant object, of a bright burnished gold reflecting like a mirror, with spots and dashes of reddish brown and orange. It is nevertheless not at all conspicuous, since it is always suspended from the underside of a leaf and gives the effect of a hole in the leaf through which the sun is shining. I shall never forget my astonishment, when, on one occasion I attempted to thrust my finger through such a hole and encountered instead the resistance of a large and apparently brilliant pupa.

The *imago* is widely mimicked, the following is a list of the mimics:—

Males. *Euripus halitherses* ♀ *forma cinnamomeus*, *Hypolimnas anomala* ♀, *Elymnias borneensis*, *Papilio paradoxus telesicles* ♂, *Pompeion subcyanea*, *Callamesia striata* ♂.

Females. *Elymnias lais* ♀, *Papilio paradoxus telesicles* ♀, *Callamesia striata* ♀ ].

Sub-genus *Calliplæa.*

25. *Euplæa* (*Calliplæa*) *adyte*, Boisd.

*Euplæa adyte*, Boisduval, Bull. Ent. Soc. Fr. 1859, p. 156.

Sub-sp. *E. adyte aristotelis*, Moore.

No less than sixteen sub-species of *E. adyte* are distinguished by Fruhstorfer, ranging all through the Malay Archipelago to Melanesia: *aristotelis* is confined to Borneo—*natunensis* occurs in the Natuna Is.

Sub-genus *Macroplœa*.

26. ***Euploea*** (*Macroplœa*) ***corus***, Fab.

*Papilio corus*, Fab. Ent. Syst. iii, p. 41, (1793).

Sub-sp. *E. corus butleri*, Moore, (*Syn. E. Godmani* Moore).

This sub-species is confined to Borneo; the typical form occurs in Ceylon and other sub-species range from Burma through the Malay Peninsula and Sunda Islands to Palawan and Celebes.

Sub-genus *Danisepa*.

27. ***Euploea*** (*Danisepa*) ***diocletianus***, Fab.

*Papilio diocletianus*. Fabricius. Ent. Syst. III. 1, p. 40, n. 118 (1793).

*Papilio Radamanthus*. Fabricus, Ent. Syst. III. 1, p. 42, n. 127 (1793).

Sub-sp. *E. diocletianus lowei*, Butler.

The typical form according to de Nicéville occurs in India, Burmah, Indo-China, Malay Peninsula, Sumatra, Billiton, Banka, Natuna Is. The sub-sp. *lowei* is confined to Borneo. *E. schreiberi*, Butler, has been wrongly recorded from Borneo, it is apparently confined to the island of Nias.

[As I pointed out elsewhere * the females of *E. diocletianus lowei* are extremely rare whilst the males are common; in Singapore both males and females of *E.* (*Dan.*) *diocletianus*, Fab., are common. It is at least curious that the female *lowei* should differ noticeably from female *E. diocletianus* whilst the males of both form are almost identical.

The species is mimicked by :—Males :—*Euripus halitherses* ♀ *forma pfeifferæ*, *Papilio caunus mendax* ♂,

Females :—*Euripus halitherses* ♀ *forma euploeoides*, *Papilio caunus mendax* ♀ *Mimeurplœa* and also *hadamanthus*].

From Borneo; it occurs in Nias.

*Journ. As. Soc. Straits Br., No. 35, p. 31.

Sub-genus *Salpinx.*

28. *Euplæa* (*Salpinx*) *leucostictos*, Gmel.

*Papilio leucostictos* Gmelin (Pap. L.) Syst. Nat. I. 5, p. 2289, n. 889 (1788-1791).

Sub-sp. *E. leucostictos syra.* Fruhst.

Sub-sp. *E. leucostictos kadu.* Esch.

The typical form occurs in Java. I have taken the form *syra* on Mt. Matang. *kadu* occurs in N. Borneo, Palawan and Philippines and is another proof of the Philippine element in the N. Bornean fauna.

Sub-genus *Isamia.*

29. *Euplæa* (*Isamia*) *ægyptus*, Butl.

*Euplæa ægyptus*, Butler, P. Z. S. 1866, p. 277.

Occurs in Borneo, with sub-species in Billiton and Philippines including Palawan.

[The species is synaposematic with *E. Crameri* and is mimicked by the same species of butterflies and moths].

30. *Euplæa* (*Isamia*) *lowei*, Moore.

*Isamia lowei*, Moore, P. Z. S. 1883, p. 316.

Confined to Borneo, possibly a sub-species of *ægyptus.*

31. *Euplæa* (*Isamia*) *rafflesi*, Moore.

*Isamia rafflesi*, Moore, P. Z. S. 1883, p. 314.

Sub-sp. *E. rafflesi sophia*, Moore.

Borneo and Sumatra, other sub-species occur in Singapore, Nias, and Mentawei, the typical form occurs in Java—De Nicéville (J. A. S. B. vol. lxx, 1901), considers all the above species to be synonymous with *Isamia chloë*, Guér. from Malay Peninsula.

Sub-genus *Stictoplæa.*

32. *Euplæa* (*Stictoplæa*) *dufresnei*, Godt.

*Danais dufresnei*, Godt. Enc. Méth. ix. Suppl. p. 815 (1823).

Sub-sp. *E. dufresnei tyrianthina*, Moore.

The sub-species occurs only in N. Borneo, where there is a distinct Philippine element. The typical form occurs in the Philippines, other sub-species in Sumatra, Java, Lombok, Sumba, Sumbawa, Alor, Palawan.

Messrs. Pryer and Carter in their list recorded *E. binotata*, Butl., from N. Borneo, but this is certainly erroneous as the species is otherwise only known from N. India. They also record *E.* (*Stictoplœa*) *susah*, n. sp. which, however, is a mere *nomen nudum*, no description of the insect being given.

Sub-fam. SATYRINÆ.

Genus *Mycalesis*.

Sub-genus *Satoa*.

33. *Mycalesis* (*Satoa*), *maianeas*, Hew.

*Mycalesis maianeas*, Hewitson, Exot. Butt. iii, p. 87 *Myc.* t. 5, f. 27, 28 (1864).

Occurs also in the Malay Peninsula and Sumatra.

Sub-genus *Orsotriæna*.

34. *Mycalesis* (*Orsotriæna*) *medus*, Fab.

*Papilio medus*, Fabricius, Syst. Ent. p. 488, (1775).

Ranges over the Indian regions, Malay Peninsula, Sunda Islands, Celebes, Timor, Philippines and Hainan. The dry season form (*runeka*, Moore) does not occur in Borneo.

Sub-genus *Calysisme*

35. *Mycalesis* (*Calysisme*) *perseus*, Fab.

*Papilio perseus*, Fabricius, Syst. Ent. p. 488 (1775) ♀

Various authors record this species from Borneo, but I have not yet met with it. It occurs in the Indian region, the Malay Peninsula, Sunda Is., Philippines, Hainan and Formosa. The dry-season form does not occur in Borneo.

36. *Mycalesis* (*Calysisme*) *polydecta*, Cram.

*Papilio polydecta*, Cramer, Pap. Exot ii, pl. 144 Fig. e. f. ♀ (1777).

In the Sarawak Museum collection is a long series of this species, corresponding very well with the figures 1b, 1d, 1e, 1g. of Plate 61, in Moore's *Lepidoptera Indica* The species appears to have been previously recorded from India and Ceylon only; its validity is rather doutful.

Sub-genus *Culapa*.

37 *Mycalesis* (*Culapa*) *mnasicles*, Hew.

*Mycalesis mnasicles*, Hewitson, Exotic Butt. iii, *Myc.* pl. 5, figs. 32, 33 ♂ (1864).

The species is also recorded from Upper Burma, Tenasserim, Malay Peninsula and Sumatra.

Sub-genus *Martanda*.

38. *Mycalesis* (*Martanda*) *janardana*, Moore.

*Mycalesis janardana*, Moore. Cat. Lep. Mus., E. I. C. i, p. 234, (1857).

Previously unrecorded from Borneo, Dr. R. Hanitsch collected two specimens at Kiou, Kina Balu. Other localities: Malay Peninsula, Singapore (Davison), Java, Sumatra, Celebes (Hose).

Sub-genus *Mydosama*.

39. *Mycalesis* (*Mydosama*) *fuscum*, Feld

*Dasyomma fuscum*, Felder, Wien. Monats. iv, p. 401, (1860).

Malay Peninsula, Singapore, Sumatra, Borneo.

40. *Mycalesis* (*Mydosama*) *anapita*, Moore.

*Mycalesis anapita*, Moore, Cat. Lep. Mus., E. I. C. i, p. 232, (1857).

Malay Peninsula, Sumatra, Borneo.

41. *Mycalesis* (*Mydosama*) *pitana*, Staud.

*Mycalesis pitana*, Staudinger, Iris. vol. ix, p. 230, 1896.

Mt. Kina Balu. I have only seen one specimen captured by Dr. R. Hanitsch at Kiou, Kina Balu.

Sub-genus *Nebdara*.

42. *Mycalesis* (*Nebdara*) *amœna*, Druce.

*Mycalesis amœna*, Druce. P. Z. S. 1873, p. 339, pl. 32, f. 1. Confined to Borneo.

43. *Mycalesis* (*Nebdara*) *kina*, Staud.

*Mycalesis kina*, Staudinger. Iris. vol. v, p. 451 (1892).

Mt. Kina Balu.

Sub-genus *Suralaya*.

44. *Mycalesis* (*Suralaya*) *orseis* Hew.

*Mycalesis orseis*, Hewitson, Exot. Butt. iii, p. 80, *Myc.* pl. 6, figs. 36, 37, ♂ (1864).

Occurs also in Tenasserim, Malay Peninsula, Sumatra, and Nias.

Genus *Neorina*.

45. *Neorina lowi*, D. & H.

*Neorina lowii*, Doubleday and Hewitson, Gen. D. Lep. p. 369. pl. 61, f. 4 (1851).

Originally described from Sarawak, sub-species occur in the Malay Peninsula and Sumatra, and in Nias.

Mr. W. Doherty (J. A. S. Bengal 1889, p. 124) suggests that this species is a mimic of *Papilio helenus* and writes "it may possibly be advantageous for a scarce rather weak-flying insect of *Morphid* or *Satyrid* affinities to resemble a common *Papilio* of powerful and irregular flight"; as far as my experience goes *N. lowi* is much more common than *Papilio helenus*, it is in fact one of the common butterflies of W. Sarawak.

Genus *Cœlites*.

46. *Cœlites nothis*, Westw.

*Cœlites nothis*, Westwood, Doubleday and Hewitson's Gen. D. Lep. p. 367, pl. 66, f. 2 (1851).

Sub-sp. *Cælites nothis epiminthia*, Westw.

The typical form occurs in Siam, *epiminthia* in Borneo, Sumatra and the Malay Peninsula and other sub-species in Borneo and Tonkin.

47. *Cælites euptychioides*, Feld.

*Cælites euptychioides*, Felder, Reise Nov. Lep. iii, p. 499, (1867).

Borneo, with a sub-species in the Malay Peninsula.

Genus *Lethe*.

48. *Lethe mekara*, Moore.

*Debis mekara*, Moore, Cat. Lep. Mus., E. I. C. i, p. 219, (1857).

Occurs in Sikkim, Assam, Khasias, Burma, Malay Peninsula and Borneo. The dry-season brood does not occur in Borneo.

49. *Lethe cerama*, sp. n.

♂ *Upperside;* very similar to dry season forms of *Lethe mekara*, Moore, from Upper Burma, but of a richer brown and the ocelli on the hind-wing, smaller, but less diffuse. *Underside*, almost exactly the same as in *Lethe delila*, Staud. but the ground-colour is paler and the lilac suffusion less bright; the sub-marginal ocellus on the hind-wing is smaller. Expanse 72 mm.

♀ *Upperside;* forewing, rufous brown merging into fuscous at apex and external margin; hindwing, rufous brown with the abdominal margin pale fuscous and the lower two-thirds of the external margin pale ochreous. The six sub-marginal ocelli of the underside are indistinctly seen on the upperside, the first two as ill-defined black discs, the third as a small black pupil with surrounding ring, the fourth and sixth are hardly visible, the fifth as a large black pupil with surrounding ring. A black marginal line. *Underside;* as in the male, but very much paler, the first ocellus on the hind-wing larger. Expanse 68 mm. *Habitat:* Kuching, Sarawak. Types in the Sarawak Museum.

The male might readily be confused with *L. delila*, Staud. but the female is so very different to the female of that species that I have little hesitation in separating this low country form from the mountain species *L. delila*. The genus *Lethe* is in need of careful revision, a work that is, however, only possible to one who has access to the types of the various species.

50. *Lethe delila*, Staud.

*Lethe delila*, Staudinger, Iris. vol. ix, p. 225, pl. v, f. i. (1896)

Mt. Kina Balu.

51. *Lethe europa*, Fab.

*Papilio europa*, Fabricius, Syst. Ent. p. 500, (1775).

Occurs in the Indian region, Malay Peninsula, Siam, Sunda Is., Philippines, Hainan, Formosa, China.

52. *Lethe perimede*, Staud.

*Lethe perimede*, Staudinger, Iris. vol. ix, p. 226, (1896).

Apparently confined to Borneo.

53. *Lethe darena*, Feld.

*Lethe darena*, Felder, Reise Nov. Lep. iii, p. 498, pl. 68, f. 4.5 (1867).

Sub-sp. *Lethe darena borneensis*, Staud.

The typical form occurs in Java; the sub-species occurs on Mt. Kina Balu.

54. *Lethe dora*, Staud.

*Lethe dora*, Staudinger, Iris, vol. ix, p. 226 (1896)

Borneo only.

Genus *Ypthima*.

55. *Ypthima pandocus*, Moore.

*Ypthima pandocus*, Moore, Cat. Lep. Mus. E.I.C. i, p. 235, (1857).

Malay Peninsula and the Sunda Is.

56. *Ypthima fasciata*, Hew.

*Ypthima fasciata*, Hewitson, Trans. Ent. Soc. (3) vol. ii, p. 287, n. 12, (1865.)

Malay Peninsula, Sumatra and Borneo.

57. *Ypthima abnormis*, sp. n.

♀ *Upperside;* fuscous, without ocelli; the hind-wing is clothed with long hairs especially along the internal margin.

*Underside*—pale brown with dark fuscous striæ which on the forewing are segregated in three areas to form indistinct fasciæ—a sub-basal, a discal and a submarginal; on the hind-wing the striæ form five indistinct fasciæ,—a basal, a sub-basal, two discal and a marginal. There are no ocelli. The abdominal margin of the hind-wing is rather deeply excised and the outer margin is slightly sinuate. Cilia fuscous. Expanse, 57 mm. *Habitat*, Kuching, Sarawak.

This is a very abberrant species of *Ypthima*; it has been suggested to me that it is merely a seasonal variation but as I shall have occasion to point out later, the Bornean butterflies do not show seasonal variation; all the species of *Mycalesis*, for instance, correspond to the wet-season phase of the same species, from other countries where the distinction between the fine and wet monsoons is better marked than it is here; the dry-season phases of these species are not found in Borneo.—Type in the Sarawak Museum.

Genus *Ragadia*.

58. *Ragadia crisia*, Hübn.

*Euptychia crisia*, Hübner, Zutr. Ex. Schmett. f. 675, 676, (1832).

Occurs in the Malay Peninsula, Penang, Singapore.

The commonest species of the genus.

59. *Ragadia annulata*, Grose-Smith.

*Ragadia annulata*, Grose-Smith, A. M. N. H. 1887, p. 435.

N. Borneo.

60. *Ragadia melita*, Staud.

*Ragadia melita*, Staudinger, Iris. vol. v., p. 449 (1892).

N. Borneo and Kina Balu.

Genus *Erites*.

61. *Erites argentina*, Butl.

*Erites argentina*, Butler, Cat. Satyr. B. M. p. 188, pl. 5, f. 8 (1868).

Upper Tenasserim and Borneo.

62. *Erites elegans*, Butl.

*Erites elegans*, Butler, Cat. Satyr. B. M. p. 147, pl. 2, f. 4 (1868).

Confined to Borneo.

63. *Erites thetis*, sp. n.

♂. *Upperside*; semi-transparent cinereous, on the hind-wings the colour and markings of the underside are seen shining through; a yellow ringed, white pupilled, black ocellus occurs between the second and third median nervules with two much smaller but similar ocelli beyond it.

*Underside*; forewing of same colour as on the upper-side, more transparent at base and this area is crossed by numerous irregular striae; two indistinct ochreous bands cross the wing, one is medial the other post-medial; a row of five sub-marginal small ocelli extends from below 5th sub-costal nervule to the first median inter-space, they increase in size from above downwards; a marginal pale band. Hind-wing; basal areas and abdominal margin covered with fine fuscous striae; a medial ochreous band crosses the wing; the outer half of the wing is ochreous; a row of four black ocelli with silvery centres extends from below the 2nd sub-costal nervule to the first median interspace, the lowest of the series is large and has a fuscous suffusion bordering its inner half, the other ocelli are minute; a marginal fus-

cous line. Cilia on forewing cinereous, on hind-wing yellowish-white. The hind-wing is dentate and subcaudate. Expanse 48 mm. *Habitat*: Kuching, Sarawak. Type in the Sarawak Museum.

Genus *Melanitis*.

64. *Melanitis ismene*. Cram.

*Papilio ismene*, Cramer, Pap. Exot. i. pl. 26. figs a. b. (1775).

This common species ranges throughout India, Ceylon, Burma, Andamans and Nicobars, Malay Peninsula, Sunda Js., Hainan, Formosa, Philippines, China and Japan.

[Both the dry-season form *ismene* and the wet-season form *leda* occur in Borneo, but irrespective of the season; I have taken both forms on the same day in the middle of the wet-monsoon and in the middle of the fine monsoon, in fact the two forms fly together. The form, markings, and colouration of the imagines of these seasonal varieties are dependent on the degrees of damp or dryness to which the young stages (egg, larva and perhaps pupa, are subjected, hence a spell of wet weather in the fine monsoon—an event by no means unusual—would produce a brood of wet-season forms and conversely a spell of fine weather in the wet-season a brood of dry-season forms. *M. ismene* in its dry-season phase is remarkably leaf-like, and the insect has the habit of settling amongst fallen leaves and leaning, with both wings closed, over to one side, so that its phyllomorphic appearance is very much increased].

65. *Melanitis zitenius*, Herbst.

*Papilio zitenius*, Herbst, Natursyst. Schmett. viii, p. 5, pl. 182, f. 1, 2 (1796).

This species has previously been recorded only from the Indian region and the Malay Peninsula. The Sarawak Museum collection includes one female in the wet-season phase.

Sub-fam. ELYMNIINÆ.

Genus *Elymnias*.

66. *Elymnias nigrescens*, Butl.

*Elymnias nigrescens*, Butler, P. Z. S. 1871, p. 520, pl. 42, f. 1.

The typical form occurs in Borneo, sub-species are found in the Malay Peninsula, Indo-China, Hainan, Sumatra, Billiton, Lombok, Flores, Sumbawa, Sumba.

This is a non-mimetic species in Borneo, and it is quite the commonest species of the sub-family.

67. *Elymnias hecate*, Butl.

*Elymnias hecate*, Butler P. Z. S. 1871, p. 520, pl. 42, f. 2. Confined to Borneo.

This species according to Fruhstorfer is merely a mountain form of *E. nigrescens*, however it is by no means confined to mountains, as it occurs at Labuan and Kuching as well as on Mts. Mulu and Kina Balu and I prefer to look upon it as a distinct and good species.

68. *Elymnias panthera*, Fab.

*Papilio panthera*, Fabricius. Mant. Ins. II, p. 39, n. 40, 407 (1787).

*Elymnias lutescens*. Butler, A. M. N. H. 1867, p. 404, pl. 9, f. 10.

Sub-sp. *E. panthera labuana*, Staud.

Labuan, Sandakan and Kuching, Sarawak.

The typical form occurs in Malacca, Sumatra, Singapore and Natuna Is., sub-species in Java, Banguey, Sulu Archipelago, Palawan, Upper Tenasserim, Nicobars, Nias, Bawean, Engano.

69. *Elymnias dara*, Dist.

*Elymnias dara*, Distant. A. M. N. H. 1887, p. 50.

The male has never been described; a description of

a specimen taken in Kuching follows :— ♂ Smaller than ♀ and darker. *Upperside*, dark purplish-black, fasciae on both wings as in ♀ but narrower and shorter and with a lilac tinge.

*Underside*, dark chocolate, the spot on the costal margin smaller than in the ♀, fascia on the fore-wing not so extended. Expanse 57 mm.

The species is confined to Borneo. *E. daedalion*, de Nicév. from Burma is possibly a sub-species. Both *dara* and *daedalion* belong to Moore's sub-genus *Melynias*, not to his genus *Elymnias* as erroneously stated in Lep. Ind. vol. II, p. 154, 155.

70. *Elymnias brookei*, sp. n.

♂. The outer margins of both wings are scalloped; the outer margin of the forewing is produced in the first median interspace into a slight lobe; the outer margin of the hind-wing is produced at the third median nervule to form a short tail. No modified scales on upperside of forewing; androconia on upperside of forewing as in *E. nigrescens*, Butl. *Upperside*: black, on the forewing a sub-apical macular fascia, a few indistinct striæ on the costa and an indistinct spot at external angle, blue-green; on the hind-wing an indistinct marginal series of blue-green spots. *Underside*: ground-colour fuscous mottled with dark fuscous, paler along costal margin and apex of forewing and at base of hind-wing, on the hind-wing a sub-marginal series of degenerate ocelli, six in number, black with white centres, the fourth and fifth the largest, the sixth very minute. Cilia on forewing fuscous, on hind-wing fuscous and white alternately, *Antennæ* reddish ochreous. Expanse 70 mm. Habitat, Kuching, Sarawak (July). ♀ Unknown. Caught in a trap baited with rotten bananas. In colouration the species approaches *E. esaca* Westw. but the shape of the wings is exactly like that in *E. panthera* Fab. Type in the Sarawak Museum. The species is named after His Highness the Rajah of Sarawak, G. C. M. G.

71. *Elymnias lais* Cram.

*Papilio lais*, Cramer, Pap. Exot. ii, pl. 114, f. A.B. (1779).

Occurs in the Malay Peninsula, Sumatra, Billiton, Java and Borneo, with a sub-species in the Indian region.

[For an account of the habits of this mimetic species see P.Z.S. 1902, p. 259.]

72. *Elymnias pellucida*, Fruhst.

*Elymnias pellucida* Fruhst. Ent. Nach. xxi (1895 No. 11 p. 1) ♀

*Elymnias aroa*, Shelford, P.Z.S., 1902, p. 273. ♂ & ♀

The species is most closely related to *kumara*, Moore: it has been found on Mt. Penrisen, Sarawak, and Kina Balu, N. Borneo.

Messrs. Pryer & Cator record *Elymnias annea* n. sp. from Sandakan, but give no description of it whatever! It may possibly be the same as *E. pellucida*, Fruhst.

73. *Elymnias penanga*, Westwood.

*Melantis penanga*, Westwood, Gen. D. Lep. p. 405 ♀ (1851).

Sub-sp. *E. penanga trepsichroides*, nom. nov.

(*Elymnias borneensis*, Grose-Smith, A.M.N.H. 1892, p. 428.)

There has been much confusion over this species—or sub-species as I prefer to call it. In 1869 Dr. Wallace described (Trans. Ent. Soc. London p. 324,) a female *Elymnias* from Borneo as *E. borneensis*. This species belongs to Moore's sub-genus *Mimadelias* and is a Pierine mimic. In 1887 Staudinger figured (Exot. Schmett. pl. 86) what he supposed to be the male of this species, but Fruhstorfer in 1899 (Berl. Ent. Zeitschr. Bd. xliv p. 57) rightly points out that this is the figure of a female, however he then states that the male of *E. borneensis*, Wall. is "ganz blau und gehört mit *Mehida*' Hew. und *Sumatrana*, Wall. zusammen in eine andere

Gruppe und zwar in das sub-genus *Bruasa*, Moore." This is quite wrong, for Grose-Smith in 1892 (l. c.) described both sexes of an *Elymnias* of the sub-genus *Bruasa* from Borneo under the name of *Elymnias borneensis*; the male is blue above and is a mimic of the Euplœine butterfly *Trepsichrois claudius*, the female resembles the females of other species of the *Bruasa* section and is not a Pierine mimic as is the female of Wallace's species. Grose-Smith's name *borneensis* being then already occupied by Wallace's species, I venture to propose the new name *trepsichroides*. To make "confusion worse confounded" Grose-Smith described as the female of his *E. borneensis*, the female of another species of *Elymnias* of the section *Bruasa*—*E. konga*—the male of which was described by him in 1899. (A.M.N.H. p. 317.) An undoubted female of *E. penanga trepsichroides* (*E. borneensis* Grose-Smith) from N. Borneo is in the Sarawak Museum collection and is now described for the first time:—Very like the female of *E. penanga*, Westwood, but the sub-apical white fascia on the upper-side of the fore-wings narrower and more outwardly oblique, the costa of the fore-wing striated with white. Underside as in the male but less rufous and darker, the sub-costal primrose-coloured spot, larger than in the male. Expanse 65 mm. Hab. N. Borneo.

74. *Elymnias abrisa*, Dist.

*Elymnias abrisa*, Distant A.M.N.H. 1886, p. 531.

Sub-sp. *E. abrisa konga*, Grose-Smith.

As stated above, Grose-Smith's description of the female of his *E. borneensis* is in reality the description of a female *konga*; it is very like the female of *E. abrisa*, forma typica, but has more white on the upperside of both wings.

The following is a table of the species and sub-species of the section *Bruasa* of this genus.

*Elymnias penanga*, Westw., forma typica. Penang, Malacca and Singapore (syn. *E. mehida*, Hew.)

„ „ sumatrana, Wall. Sumatra.

„ „ *trepsichroides*, nom. nov. Borneo. (=*borneensis*, Grose-Smith.)

*Elymnias abrisa*, Dist., forma typica. Malay Peninsula.

„ „ *konga*, Grose-Smith. Borneo.

75. *Elymnias esaca*, Westw.

*Melanitis esaca*, Westwood. Gen. D. Lep. p. 405 (1851). Sub-sp. *E. esaca borneensis*, Wall.

N. & S. Borneo.

Fruhstorfer has done something to clear up the confusion surrounding the species of the sub-genus *Agrusia* (Berl. Ent. Zeitschr. Bd. xliv. p. 56, 57. 1899) but I consider the following table to be a more correct statement of our knowledge of the relationship between the different species and sub-species :—

*Elymnias esaca*, Westw., forma typica. Assam.

„ „ *borneensis*, Wall. Borneo.

„ „ *godferyi*, Dist. Malay Peninsula, Sumatra.

„ „ *andersoni*. Moore. Mergui Archipelago.

„ „ *leontina*, Fruhst. Nias.

„ „ nov. sub-spec. (fide Fruhstorfer) Batu Is. (Mus. Tring.)

„ *maheswara*, Fruhst. Java.

„ *egialina*, Feld. Philippines.

*E. esaca*, Westw., has been wrongly recorded from Borneo. Bornean male specimens have a red patch at the base of the hind-wing below, which males of *E. esaca* have not, and I have no doubt at all but that the so-called *esaca* (male) of Borneo is nothing but the male of Wallace's species *Elymnias borneensis* (cf. *antea*). Distant has confused the female of *godferyi* with the females of

Wallace's species and so has wrongly recorded this species also from Borneo; as pointed out by Fruhstorfer *E. esacoides*, de N., described from a male only, is probably the male of *E. godferyi*, Dist. *E. andersoni*, Moore., I regard as a sub-species of *E. esaca*. The female of *E. esaca* has not yet been described, it will prove to be a Pierine mimic.

Sub-fam. AMATHUSIINÆ.

Genus *Zeuxidia*.

Sect. i.

76. *Zeuxidia amethystus*, Butl.

*Zeuxidia amethystus*, Butler, P. Z. S. 1865 p. 485.

The species appears to have been recorded previously from the Malay Peninsula and Sumatra only.

[In common with nearly all the *Amathusiinae*, this species can be taken in traps baited with rotten fruit].

77. *Zeuxidia doubledaii*, Westw.

*Zeuxidia doubledaii*, Westwood, Gen. D. Lep. p. 329 pl. 52, f. 1 (1851).

Previously recorded from the Malay Peninsula and Penang only.

78. *Zeuxidia wallacei*, Feld.

*Zeuxidia wallacei*, Felder. Reise Nov. Lep. p. 461, pl. 62, f. 3.

Confined to Borneo.

Sect. ii. *Zeuxaltis*.

79. *Zeuxidia pryeri*, Butler.

*Zeuxidia* (*Zeuxaltis*) *pryeri*, Butler. A. M. N H. 1897. vol. 19, p. 469.

N. Borneo

Genus. *Amathuxidia.*

80. *Amathuxidia amythaon*, Doubl.

*Amathusia amythaon*, Doubleday, A. M. N. H. 1847, p. 175, *A. amythaon ottomana*, Butl.

The typical form occurs in the Indian region, *ottomana* in Borneo and another sub-species in the Malay Peninsula.

Genus *Amaxidia.*

81. *Amaxidia aureliana*, Honr.

*Amaxidia aureliana*, Honr. Berl. Ent. Zeit. 1889, p. 162.

Confined to Borneo.

This may perhaps be only a sub-species of *A. aurelius* Cr., from the Malay Peninsula and Sumatra.

Genus *Amathusia.*

Sect. i.

82. *Amathusia phidippus*, Joh.

*Papilio phidippus*, Johanssen. Amoen. Acad. vi. p. 402 (1764).

Borneo, Java, Sumatra with sub-species in the Malay Peninsula, Burma, Tenasserim, Nias, Mentawei, Celebes, Torres Straits (?)

83. *Amathusia schönbergi*, Honr.

*Amathusia schönbergi*, Honrath. Berl. Ent. Zeitschr. p. 347 T. vi. f. 1 (1887).

Sub-sp. *A. schonbergi borneensis*, Fruhst.

Banjermassin. The typical form occurs in Pegu, Tenasserim and the Malay Peninsula.

Sect. ii. *Pseudamathusia.*

84. *Amathusia ochreofusca*, Honr.

*Pseudamathusia ochreofusca*, Honr. Iris. 1886, p. 348.

Malay Peninsula, Borneo, Sumatra.

Genus *Thaumantis*.

Sect. i.

85. *Thaumantis odana*, Godt.

*Morpho odana*, Godart, Enc. Meth. ix. p. 445, (1823).

Malay Peninsula, Nias and the Greater Sunda Is.

Sect. ii, *Kringana*.

86. *Thaumantis noureddin*, Westw.

*Thaumantis noureddin*, Westwood, Gen. D. Lep. p. 337, (1851).

Malay Peninsula and Borneo.

87. *Thaumantis lucipor*, Westw.

*Thaumantis lucipor*, Westwood, Gen. D. Lep. p. 337, (1851).

Malay Peninsula and Borneo.

Sect. iii, *Thauria*.

88. *Thaumantis aliris*, Westw.

*Thaumantis aliris*, Westwood, Trans. Ent. Soc, 1856, p. 176, pl. 17.

Confined to Borneo.

Genus *Discophora*.

89. *Discophora necho*, Feld.

*Discophora necho*, Felder, Reise Nov., Lep. iii, p. 462, (1867).

Sub-sp. *D. necho cheops*, Feld.

The typical form occurs in Java, *cheops* in Borneo. other sub-species in Sumatra, Nias, Palawan and the Philippines.

90. *Discophora tullia*, Cr.

*Papilio tullia*, Cramer, Pap. Exot. i, pl. 81, figs. A. B., (1775).

Sub-sp. *D. tullia sondaica*, Boisd.

The typical form occurs in Hongkong, *sondaica* in Java, Sumatra and Borneo, other sub-species in India, Tenasserim, Malay Peninsula and the Philippines.

91. *Discophora amethystina*, Stich.

*Discophora amethystina*, Stichel, Berl. Ent. Zeitschr. xlvi. S. B .p. 4, (1901).

Borneo. I am not acquainted with this recently described species.

Messrs. Pryer and Cator also record *Discophora celinde*, Stoll. and *Discophora ogina*, Hübn, from Borneo, but without having actually taken specimens of these species, so that the records must be regarded as extremely doubtful.

Genus *Enispe*.

92. *Enispe milvus*, Staud.

*Enispe milvus*, Staudinger, Iris vol. ix, p. 231, pl. v. f. 4, (1896).

Mount Kina Balu.

Marshall and de Niceville in Butterflies of India, vol. i, p. 312, record *Stichophthalma nourmahal*, Westw. from India, Sikkim and Borneo; the latter locality is evidently erroneous and I can find no confirmation of it in any other publications on Oriental butterflies.

Genus *Clerome*.

93. *Clerome phaon*, Erichs.

*Papilio phaon*, Erichson, N. A. Acad. N.C. p. 401, pl. 50, figs 1, 1a (1834).

Philippines and Borneo.

Westwood (Trans. Ent. Soc., London, 1856, p. 186), gives Borneo as one of the localities of this species, the locality has up to the present never been confirmed; there are however several undoubted specimens of this

species in the Sarawak Museum collection from Limbang and Trusan, N. Sarawak. As before mentioned there is an infiltration of Philippine forms to be discerned in the N. Borneo fauna.

94. *Clerome gracilis*, Butl.

*Clerome gracilis*, Butler A.M.N.H., 1867, p. 401, pl. 8, f. 7.

Malacca, Singapore, Borneo, Sumatra.

I cannot agree with Fruhstorfer in regarding this as a sub-species of *phaon*.

95. *Clerome stomphax*, Westw.

*Clerome stomphax*, Westwood, Trans. Ent. Soc., 1856, p. 186, pl. 21, figs. 3, 4.

Borneo.

96. *Clerome besa*, Hew.

*Clerome besa*, Hewitson, Exot. Butt. iii, *Cl.* pl. 1, fig. 1, (1863).

Fruhstorfer considers this to be merely an aberration of the preceding species.

Borneo.

97. *Clerome arcesilaus*, Fab.

*Papilio arcesilaus*, Fabricius, Mant. Ins. ii. p. 28, (1787).

Indian region, Siam, Malay Peninsula, the Greater Sunda Is. and Bali.

98. *Clerome kirata*, de Nicév.

*Clerome kirata*, de Nicéville, Journ. Bombay Nat. Hist. Soc. 1891, p. 344, Pl. F. fig. 3.

Malay Peninsula, Borneo (Kina Balu), Sumatra.

Genus *Tenaris*.

99. *Tenaris occulta*, Grose-Smith.

*Tenaris occulta*, Grose-Smith, A.M.N.H. 1889. p. 316, Borneo.

Genus *Xanthotænia*.

100. *Xanthotænia busiris*, Westw.

*Xanthotænia busiris*, Westwood, Trans. Ent. Soc. London, 1856, p. 187.

Tenasserim, Malay Peninsula, the Greater Sunda Is., and Nias.

Genus *Amnosia*,

101. *Amnosia baluana*, Fruhst.

*Amnosia baluana*, Fruhstorfer, Ent. Nachr. xx, No. 19, p. i, (1894).

N. and S. Borneo.

Herr Fruhstorfer informs me that in his collection is a female of this species from S. Borneo which differs somewhat from the type female from Kina Balu; I have only seen specimens from Mt. Matang near Kuching and these do not appear to differ in any way from the published description of the Kina Balu form: Herr Fruhstorfer's S. Borneo specimen is evidently from the low-country.

The position of this genus is very doubtful. I follow Fruhstorfer in placing it amongst the *Amathusiinæ*; de Nicéville suggested that it should come at the end of the *Satyrinæ*, whilst Felder and Schatz-Röber placed it amongst the *Nymphalinæ*, probably its correct position.

# The Sakais of Batang Padang, Perak.

By G. B. Cerruti.

The word Sakai is the Malay name for the aborigines who inhabit the forest on the high slopes of the lower half of the main ridge and some subsidiary ridges of mountains of the Malay Peninsula. As the Malays were the first to come into intercourse with these aborigines, the influence of the Malay, as well as the fear of them, is strong upon them. Malay history in Perak reaches with certainty no farther back than the 16th century, and Malays have no written records relating to the Sakais, whom they treated as slaves and less than human beings.

The Sakais themselves have neither written records nor signs to represent language, whatever information regarding their origin is supplied by them rests solely in tradition.

The narrative of events, which is extracted from them with difficulty, very seldom passes beyond the time of a grandfather, and may be regarded as inexact if not incoherent.

We shall, therefore, have to look for knowledge of their origin to the results of a morphological study of the race.

## Physical Characters.

The average height of the male Sakai may be taken approximately at 5 ft. 3 in: and that of the female at 4 ft. 11 in: These figures are for the present only tentative. The colour various from a light to a chocolate-brown, the eyes are slightly almond shaped, the nose is flat, the forehead straight, the lips full and separate, but not negro like, the teeth regular and well-formed though blackened by sireh, the hair copious, black, somewhat wavy, occasionally crisp, but never woolly. The senses are unusually keen and well developed. In his native jungle he sees better, hears better, and apparently uses his sense of smell better than other races. His touch is delicate and sensitive, as is that of most savage races, and his sense of

taste is his criterion to judge of the good or ill effects of many objects.

The body and limbs are generally speaking well formed. Cripples and deformed children are extremely rare amongst the Sakais, nor are abnormalities of anatomical structure frequent amongst them.

## Mental and Moral Characters.

A desire for what may be called independence, but what in reality is a dislike of restraint is remarkable in this race. Work for a Sakai must be voluntary; the moment that it becomes compulsory it becomes distasteful.

Not less notable is his distrust of strangers. The approach of a white man will often scatter a whole habitation of Sakais; and even the presence of natives of other races, such as Malays, Tamils or Chinese, is a frequent cause of their speedy removal from an accustomed haunt. Once the Sakai confidence is secured, he is like a child, and must be treated as such. All obligations entered into with him must be scrupulously observed, for, like the natural child, he is not prone to deceit or falsehood. He is also possessed of the child's simple idea of morality, as expressed in his words and acts. Early marriage being the custom, the immorality of civilized races, with its literature and influence on social relations, is unknown.

## Dress.

Bark beaten finely and elongated until it resembles coarse ramie fibre, is the material from which the primitive clothing is made. Both sexes fasten strings of this bark, about six inches or more wide, around the waist, by tying them in back and in front. A thin fillet of the same stuff, dyed and coloured in a simple pattern, is used to tie the hair, which is generally filled by the women with combs, made of bamboo and ornamented in various styles.

Flowers are universally worn by the women in the hair, around their necks as necklaces, and occasionally in their waist-belts of odorous grass. In both sexes the nasal septum is perforated for the insertion of straight pieces of bamboo, and the ear only by the women for the insertion of some bamboo with

some odorous grass, of shell, and of animal teeth, to serve as ornaments.

### Ornaments.

The use of necklaces belongs to attire. Ornamentation of the body is effected by painting the skin in different colours, mostly red, yellow and black, by dyes obtained from plants, gutta and lime. Two lines, one drawn from the vertex of the head over tip of nose to chin, and the other from ear to ear, bisecting the first, divide the face into four areas, the painting of two of which on one side must correspond to the painting of the two others of the opposite side.

The chest and body are generally divided also by a vertical line cleaving the trunk in two halves, right and left, upon which similar patterns are painted.

The object of this adornment by painting is not merely decoration, it is what formerly would have been called dedicated to superstitious uses. The painting of the face and body is, in fact, a species of charm and is supposed to act as amulets and talismans are presumed to act, by warding off dangers, driving afar evil spirits, and filling the wearers with unusual courage.

### Religious Sentiment.

It is a peculiarity of the Sakai that, like many of his characteristics, his religious belief is extremely simple. The idea of a Creator, of an all-powerful, all-just and all-merciful Ruler, is absent from his scanty mythology. The origin of the world and the life of mankind on the earth present no problems to him. He believes simply in good and evil spirits. The good spirits are to him vague, indefinite beings, who manifest themselves rarely fatally, and about whom, therefore, he knows and believes little. The evil spirits, on the contrary, are feared, because they are considered to dwell in dangerous ravines, in abandoned *kampongs*, in caverns, and in places regarded according to popular Sakai report as uncanny, whence they issue to infect the Sakais with famine and disease. They also are believed to make themselves felt in thunder, in lightning, and most particularly of all in wind. The early morning breeze

which blows on the tropical hills after 2 a.m. is for the Sakai the work of bad spirits. It is the hour when he feels the fall of temperature most, and it is for him a fatal hour. Accordingly, all true Sakais are awake at this time to chat and smoke and wait until the biting blast passes away. Tattooing is little known amongst them; and though they have a certain knowledge of the ways of tigers and snakes, these are neither worshipped nor considered to be directly concerned with evil spirits.

## Social Relations.

The most important circumstance of a man's, and of woman's life, marriage, does not loom large in the Sakai's mind. For him it is neither a religious ceremony nor a civil contract, it is merely a mode of sexual union founded upon mutual sympathy. Rites in connection with it have so far not been proved to be practised. There is neither capture, nor purchase, nor selection. The elders, moreover, do not appear to interfere in the choice of their sons and daughters.

It is probable that it is owing to this fact that these aborigines are gradually decreasing in numbers, even though consanguinity in matrimonial relationship is forbidden, about the only prohibition of any kind that the Sakais know, and to which they submit.

Polygamy exists, but it is rare. Divorce also exists, and is common. The marriage tie, being as loose as is described, is unable to consolidate a union; the slightest incompatibility of temper, temporary sterility of the wife, lasting about three durian seasons, or an attack of dangerous disease, is a sufficient cause for a divorce, which is accomplished without resentment or apparent jealousy on either side. Deformed persons which are very rare amongst the Sakais, or those attacked by dangerous disease, must make a vow of celibacy. The women give birth to their children with only old women attendants, but in a place prepared by the husband. The child is not allowed to touch the earth, either from a superstition that the child would be injured by contact with the earth, or that the child would soil the ground, but is laid upon a couch of dry leaves, which cover a rudely made clay embankment. Directly after birth only old women and young children who are not able and

strong enough to enter the jungle to find their daily food are permitted to approach the child. All others are excluded for a certain period, as there is a certain superstition among them that able bodied persons approaching a newly born baby will contract its smell and take it to the jungle with them when out looking for food. The evil spirits, it is said, are always on the look-out for persons with this smell, and will follow them on their return to their huts to the birth place of the child. At the end of that time the child receives what may be called a ceremonial purification of water, and is presented to him at the village.

## HABITS.

The Sakais are essentially nomadic, and clear only very limited areas in the hill forests for cultivation; of rice culture they know little, for corn or maize and the Sikoi, sweet potatoes, and tapioca, are their principal crops. The most primitive of the Sakais still subsist by the chase, using the Sumpitan, or blow-gun, and poisoned darts to kill wild animals and birds. As is well-known, the darts are poisoned by being dipped in a gummy or glutinous extract of Ipoh which hardens on the tips, and of another and more dangerous poison extracted from the roots of a kind of creeper named by the Sakais *Legop*.

The Sakai dies as he lives, surrounded by powers of nature which he understands not. If a disease be regarded as contagious, a noise is made on rude drums made of big bamboo to drive away the evil spirits. It is remarkable that there are not musical instruments to express grief; but in expression of joy a flute played through the nose, and a kind of mandoline made also of bamboo, are performed upon particularly by women. After death comes burial in a deep grave, the body generally standing erect in the grave about 4 feet deep or in a sitting posture with tobacco, betel-nut, potatoes, fruits and also with his blow-pipe and poisoned darts by his side. The grave is closed by felling some jungle surrounding it and for about a week they bring the usual food, if a female also some flowers, and afterwards abandon the neighbourhood; for a dead person frequently drives the timid Sakais miles awayfrom promising slopes on which they were beginning to grow their necessary food.

# On Some Hymenoptera From the Raffles Museum, Singapore.

By P. Cameron.

Dr. Hanitsch having sent me to be named some undetermined Hymenoptera from Singapore, I give a list of them as a small contribution towards the knowledge of the Hymenopterous Fauna of the Island.

*Evania appendigaster* Lin. A cosmopolitan parasite in the egg-cases of Cockroaches.

*Stilbum splendidum*, Fab.

*Macromeris violocea*, Lep.

*Discolia decorata*, Burm.

This species (which = *D. flavopicta* Lm.) is in the collection of the Raffles Museum from the Dindings.

I think it very probable that *D. ergenna*, Com. (Journ. St. Br. Royal Asiat. Soc., 1902, p. 82) is its male.

This species is recorded by Magretti (Ann. ch. Museo Civico di Storia Nat. di Genova (2) xii, 243) from Schwegoo, Burma; but it is not included by Bingham in the Fauna of British India, Hymen. It has been reported from Java and Sumatra.

*Salius flavus*, Fab.

*Sceliphron violaceum*, Fab.

*Irypoxylon petiolatum*, Sm. Found in the Museum Workshop.

*Piagetia ruficollis*, sp. nov.

Black the scape of the antenæ, the greater part of the clypeus, the prothorax, the mesonotum in front of the tegulæ, the tegulæ, the abdominal petiole, except at the base, and the

legs, red; the 4 front coxæ above, the hinder entirely, the basal point of the 4 front, trochanters, of the hinder above, a line on the fore femora behind, the apical two thirds of the hinder above, the greater part of the hinder tibial and the base of the hinder coxæ, black. Wings hyaline, the basal half of the radial cellule, the apex of the 1st cubital cellule, the greater part of the 2nd and 3rd and the discoidal along the recurrent nervure smoky; the nervures and stigma black. Head and thorax covered with silvery pubescence ♀

Length nearly 10 mm.

Hab. Singapore, June.

Clypeus indistinctly keeled down the centre; there is a semi-circular depression in the middle at the apex, which has a distinct margin and has a slight incision. Base of mandibles broadly yellowish testaceous. The base of the hinder femora is slightly thickened below, the apex of the thickened part ending in an indistinct tooth.

Comes nearest to *P. rufivenis*, Cam. which may be known from it by the antennæ being almost entirely red, and the sides and apex of the median segment are also red.

*Rhynchium hæmorrhoidale*, Fab.

*Vespa cincta*, Fab.

*Icaria Singapurensis*, sp. nov

Brownish-black, the head below the antennæ, except for a narrow black line down the centre, a mark, twice longer than wide and dilated above, a mark twice longer than broad, transverse above, narrowed and rounded below, on the front the eye incision and the lower inner orbits broadly, the upper orbits narrowly, the line dilated above to the hinder ocelli, the outer orbits entirely below, the inner half of the upper part, the mandibles, except the teeth, a line on the pronotum, the base and the lower half of the propleuræ, the meso and metapleuræ, except for an oblique black line on the former and extending from the lower furrow downwards and with a short line on either side of its top, 2 lines on the mesonotum, the base of the scutellum, the post-scutellum, 2 large lines on the centre of the

metanotum, the sides of the petiole to near the apex, 2 round marks on the centre of the post-petiole, the extreme base of the 2nd segment, its sides to shortly beyond the middle broadly, the mark at the apex diverging towards the middle of the segment, 2 large marks on the basal half of the 3rd, the marks broader than long and rounded on the inner side, the 2nd segment below, except along the sides and apex, the latter with the sides broadly and roundly dilated and the centre transverse, the base of the 3rd segment, the line narrowed and transverse in the middle and lines on the sides of the apical segments, yellow, legs black, all the coxæ, the lower side and the apical half of the femora above, the underside of the tibiæ and their apex above, yellow; the apical joint of the fore tarsi of a more obscure yellow. Wings hyaline, with a violaceous-tinge, the nervures and stigma black.

Length 14 mm. ♀

Hab. Singapore.

Scape of antennæ below yellow, the flagellum beneath and its apex above, rufous. There is an indistinct keel on the lower part between the antennæ. The black on the front is tinged with rufous. Thorax smooth, the scutellum closely, minutely punctured, its apical half furrowed in the centre. The petiole is longish as long as the 2nd and 3rd segments laterally together; the dilated apex is somewhat twice longer than wide. Head broader than the thorax.

Comes near to I. *4-maculata*, Cam. The present species is more slenderly built and with a more slender petiole in particular being more slender and not dilated in the middle.

*Icaria rufinoda*, sp. nov.

Deep black, densely covered with white pubescence, the apex of the clypeus and the base of the mandibles pallid yellow, the petiole ferruginous; the wings hyaline, the whole of the radial cellule and the greater part of the apex from the 2nd transverse cubital nervure smoky, with a violaceous tinge, the nervures and stigma dark fuscous. ♀

Length 12 mm.

Hab. Singapore, June.

Front and vertex alutaceous, the face and clypeus densely covered with a white pile. Thorax alutaceous, covered with a white pile. Metanotal furrow deep, the sides oblique, the bottom with a narrow smooth impression; it is not striated. Scutellum and post-scutellum coarsely alutaceous, almost rugose; the apical slope of the post-scutellum smooth and shining. Abdominal petiole nearly as long as the 2nd segment, the basal third narrowed; the basal half of the dilated part obliquely narrowed towards the base, the 2nd segment bell-shaped, its length slightly greater than its width at the apex, which has a distinct crenulated furrow, the apical segments with a silky pubescence. Legs primrose, the spurs black.

Comes close to I. *lugubris* Sm. which may be known from it by the black abdominal petiole.

*Nomia iridescens*, Sm.

*Crocisa emarginata*, Lep.

*Anthophora zonata*, Lin.

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## Malay Hymenoptera Addenda and Corrections

In my paper (J. S. B. R. A. No. 39, 1903) I have omitted to state that Mr. Shelford reared *Spinaria curvispina* Cam. from the larva of a species of *Thosea*, a moth of the Family *himacodidæ* and *Dedanima longicornis* Cam. from a species of *Chærocampa*.

I take this oppertunity of adding the descriptions of two new Malay species of *Bracon*.

*Bracon teius* sp. nov.

Black; the head pallid yellow; the pro. and mesothorax and the sides of the median segment on the basal half, ferruginous; the 4 front legs ferruginous, the middle tarsi fuscous, the hinder legs black, thickly covered with black hair, the calcaria dark testaceous. Wings dark fuscous, violaceous, with an indistinct hyaline, oblique cloud in the 1st cubital cellule. ♀

Length 16; terebra 20 mm.

Hab. Ternate.

Face rugose, covered with long pale hair. Apex of 1st abdominal segment closely, distinctly longitudinally striated; the plate on 2nd segment clearly longer than its greatest width irregularly striated in the centre, its keel reaching to the base of the apical third of the segment; from its outer side a keel runs obliquely to the apex; the part between the keels bears curved, oblique, clearly separated striæ; the securiform articulation and the furrow on the next segment striated; in the centre the striæ are continued on to the centre of the segment, The 2nd and 3rd abscissæ of the radius together are about equal in length to the 1st. The abdomen is narrow not dilated in the middle and is clearly longer than the head and thorax united.

*Bracon spilogaster*, sp. nov.

Black, the head pallid yellow, the thorax and 4 front legs ferruginous; the wings fuscous, the stigma and nervures black. ♀

Length 9 mm.; terebra 4 mm.

Head smooth and shining; the face and vertex covered with fuscous pubescence. Thorax smooth and shining; the metanotum has 2 blackish marks on the apex. Abdomen as long as the head and thorax united; black, the basal 4 ventral segments pale, with 2 large black marks in the centre; broad in the middle, narrowed at the base and apex; smooth and shining; the securiform articulation stoutly striated; the keel on the 2nd segment is longer than broad, is broad at the base, becoming gradually narrowed towards the apex, which is prolonged into a short keel with a depression on either side, but not reaching to the apex of the segment; the furrows on the 3rd and 4th segments are narrow, curved and smooth.

The tibiæ and tarsi are thickly covered with a pubescence and, more sparsely, with pale hair; the hinder calcaria fuscous; the 2nd cubital cellule in front is about one-third longer than the 3rd. Mandibles pale yellow, the teeth black.

*P. Cameron.*

## ERRATA.

In my paper in the "Journal" for 1902, No. 37 occur the following printer's errors.

Page 30, 13th line from bottom for "covered" read "curved"
„ 31 & 32 for "Megiselens" read "Megischus."
„ 33, 10th line from top for "sharpened" read "shagreened"
„ 34, 1st „ „ for "smoothy" read "smoky."
„ 37, 17th „ „ for "Brule" read "Brulle."
„ 39, 5th „ „ for "expressed" read "depressed"
„ 39, 16th „ „ for „ read „
„ 44, 7th „ „ for *acvenitini* read "*acoenitini*."
„ 44, 10th „ „ for *acvenites* read *acoenites*.
„ 47, 11th „ „ for Fah. read Fab.
„ 50, 3rd line from bottom add after "smooth" *peronatum*.
„ 50, add after "reticulated" in last line *fuscicorne*.
„ 51, above *anisobas cincticornis* add *Ichneumonini*.
„ 52 „ *Bodargus* add *Joppini*.
„ 53 „ *Diapetus* add *Cryptini*.
„ 62 2nd line from bottom for "slope" read "shape"
„ 71 14th „ top *Joppini* should be placed above *Zonojoppa*.
„ 78, 5th „ bottom for "are" read "areæ."
„ 81, top line for "metapleurg" read "metapleuræ."
„ 91, 9th line from top for "sharpened" read "shagreened"
„ 114, 12th „ bottom for "tubæ" read "tibiæ"
„ 125, 2nd „ „ for "tech" read "teeth"
„ 138, 3rd „ „ for "covered" read "curved"

*P. Cameron.*

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## Correction to Journal No. 39.

Page 54 after line 18 insert.

"Follow the principal noun with which they are connected; and the object."

# Short Notes.

## On the Flowering of Barringtonia racemosa.

The Barringtonias are trees of moderate size, belonging to the order *Myrtaceæ* and usually to be met with along tidal rivers, or more rarely in the hill woods. The flowers are produced in long hanging racemes, or in some species in short erect spikes. In *B. racemosa* the pendulous spikes are about 2½ feet long and bear about 30 flowers. They are sessile with a short ⅛ inch ovary with 2 or 3 rounded green sepals and four lanculate white petals, an inch long. The stamens are innumerable, with slender filaments an inch long and minute yellow anthers, the style is nearly as long slender with a minute capitate stigma and all deep crimson.

The peculiarity of its flowering consists in the fact that it is nocturnal. The flowers open about 4 or 5 to 16 on each spike at a time, the buds commence to split about mid-day, and remain partially open till nightfall, fully expanding at about half-past seven or eight. At that time the petals are spread out widely, and the stamens radiate in all directions, so that the flowers have a brush-like appearance.

Before daylight the petals and stamens have fallen in a mass, leaving only the calyx and the stiffly projecting style.

They exhale a rather coarse scent somewhat resembling that of meadow-sweet, and from a tree with about 20 flowers open at once I could perceive the scent distinctly at 25 paces off. The honey, abundant at night, is contained in a nectary formed by the connate bases of the stamens. The flowers are visited by moths, I caught a common grey Noctuid, and a rather curious looking light red brown *noctua* with plicate wings.

Moths were not very abundant at the flamers, when I observed them, but perhaps this was due to the strong moonlight.

The smaller brown moth plunged into the flower among the stamens so as to reach the honey.

I have little doubt that a large tree of the genus *Careya* (apparently undescribed) in which the flowers were of similar shape but borne in an erect short spike, is fertilized in the same way, as though in full flower no open flowers were procurable during the day time, but the whorls of stamens were found covering the ground in the mornings. In this lofty tree in the Botanic gardens jungle the stamens were white but the base of the filaments crimson.

The Myrtaceæ as a rule seem to be day flowering plants. The Eugenias, our biggest genus, have usually white flowers often produced in large corymbs. *Eugenia lineata* and similar species are haunted, when in flower, by abundance of bees. *Apis dorsata* and *A. florea*, *Trigona collina* and other species and the pollen-eating flies (*Syrphidæ*) and also by many butterflies.

*E. Ridleyi* peculiar from the flowers being light apple green in colour is visited by flies (*Muscidæ*).

*Rhodamnia trivervia* with small white sweet scented flowers produced in great abundance and lasting but a day each, is visited by bees, *Apis*, and *Trigona*, and by the *Syrphidæ*.

*H. N. Ridley.*

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## Fertilization of Webera Stellulata.

*Webera Stellulata* Hook. fil. is a small shrub 2 or 3 feet tall belonging to the order *Rubiaceæ*. It has smooth dark green shining leaves elliptic cuspidate, and a short dense corymb of light green flowers. The buds are peculiar in shape, being fusiform and narrowed towards the tip, the joints of the petals instead of being pressed together at the top into a point as in the other species of *Webera* are turned out to one side bent at an angle pointing from left to right. They are green and covered with white hairs and at the base they are connate into a short tube, in the mouth of which are long white hairs. The stamens five in number have short green filaments and long linear anthers, which split and shed their pollen before the

flower opens. The style is long and cylindrical and covered entirely with white hairs. When the fully developed bud is touched on the tip, the petals suddenly spring open and lie quite flat in the form of a star. At the same time the pollen lying loose in the bud is thrown upon the other flowers already open. The mechanism by which this sudden expansion of the flower takes place seems to be very simple. The upper part of the petals are twisted in bud, and on the side opposite to the direction in which the bent tip points a portion of the edge is incurved so as to be tightly held by the next petal to it. A light pressure, as of an insect, on the horizontal tips of the petals by bending them down causes the petals to separate and fly back suddenly, jerking the pollen out over the other flowers, or possibly on the insect visitor. On the top of the ovary is a brown sticky ring which may perhaps secrete honey but I cannot detect any in the tube. The flowers possessed a faint scent, and may be fertilised by insects, but considering the inconspicuousness of the green flowers, as compared with the sweet-scented white blossoms of the other Weberas and the fact that it is quite easy for the pollen of one flower to be thrown by the mere opening of the flower on to the stigma of the adjacent one, it is more than probable that the plant itself fertilises one flower by the pollen of another.

*Webera stellulata* inhabits forests, usually in rather dry spots. I have found it in Singapore at Woodlands flowering in June, and Bukit Mandai, also in Johore, at Panchur; Selangor, Kuala Lumpor; Negri Sembilan, Gunong Angsi.

The Malays call it Kahwa hutan and Kuruseh putih and Pokoh Subiroh. It flowers from December to June.

*H. N. Ridley.*

## Human Images among the Orang Mantong.

I have long suspected the existence of Berhala, or human images, among the "wild tribes" of the Rhio archipelago, but never actually met with any until the past summer (1903).

When at Pulo Sanglar or Lake Durian, Rhio archipelago, in July. I found two wooden images representing women, in a cave near the sea shore, not far from Kampong Telok Lanun.

Each image is about 3½ feet high. One of harder wood was much more carefully carved than the other. It had 3 wooden horns about 6 inches long projecting upwards from the head. These horns were serrated on one edge. This figure also had straight rudely carved arms of soft wood, much decayed.

The teeth were represented by pieces of broken shell. A blackish line extended diagonally across the chest, meeting a horizontal line extending across just above the position of the nipple. A blackish spot was over the position of the heart.

The other figure was very rudely carved of soft white wood and was without arms.

The figures were lying face downward on the floor of the cave and had evidently not been disturbed for months, as roots were growing over them and the wood was beginning to decay.

Pulo Sanglar is inhabited by Orang Mantong, and latterly many Chinese have settled there cultivating gambier.

The Batin of Telok Lamun called himself a *Malay*, but he was more than half Orang Laut.

No true Malays live on Sanglar, but they inhabit the neighbouring small islands. These Malays call all the Sanglar people *Tambus*, except of course the Chinamen, and say there is not a Mussulman. All the Sanglar people eat pig. They are certainly not true *Tambus*. They were very shy, and I had a lot of trouble inducing them to be photographed.

No information in regard to the use of the images could be obtained. Every one denied the existence of such things, not knowing I had already found them.

The images cannot be regarded as true *berhala* or idols. Most probably they are a sort of "*Sakkat huang*" for use in

sickness. Among the Orang Laut when a man is ill, a wooden figure of a bird, snake, fish or other animal is made, and the *pawang* or *bomo* exorcises the hantu or devil in the sick man and drives it into the figure, which is then carried out to sea and thrown overboard. Last year we picked up a wooden bird floating in Durian Strait.

Very likely the human figures were used in the same way, being carried out into the jungle instead of out to sea. Like the Rumah hantu to be seen in the woods near Malay Kampongs. These images resemble the adu adu of Pulo Nias.

*Dr. Abbott.*

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## The Orang Laut of Singapore

In Journal 33, p. 247, Mr. Skeat and I published some notes on the Orang Laut of Singapore, a race very nearly extinct, and of which very little is known, I have since come across an account of them in Finlayson's Mission to Siam and Cochin China, in 1821. The author somewhat naturally mistook them for Malays and thus describes them. "The condition of the lower class of Malays in these parts is wretched beyond what we should conceive to be the lot of humanity in an intertropical climate, almost the whole of their life is spent upon the water in a wretched little canoe in which they can scarce stretch themselves for repose. A man and his wife and one or two children are usually to be found in these miserable sampans; for subsistence they depend on their success in fishing. Their tackling is so rude and scanty that they are often reduced to the most urgent want, when they have made a meal they lay basking in the sun or repose under the dense shade of the mangrove till hunger again calls them into action. They have scarce a rag of cloth to secure them from the scorching noonday sun or shelter them from the damp and noisome dews and exhalations of night. The women are not less dexterous than the men in managing their boats. Their only furniture consists of one or two cooking pots, an earthen jar and a mat made of the leaves of the Pandanus which serves to protect them from the rain. In the numerous bays inlets and creeks that surround Singapore an inconceivable number of families live in

this wretched manner who have never possessed a house nor any sort of abode on the land. They are constantly roving about from place to place in pursuit of fish. What they have succeeded in taking more than is required for their immediate use, they dispose of to the fixed inhabitants, taking rice, sago, betel and cloth in return. This description of Malays goes by the appellation of Orang Laut or men who live on the sea.

A number of the people called Orang Laut were brought to us for inspection. They were superior in condition, in appearance more civilized than many whom we had seen in the bays and creeks remote from the haunts of men. A portrait was taken of one of them illustrative of the physiognomy and general appearance of the Malay race, six of these men were more minutely examined. Their average height was five feet three inches, average weight nine stone eight pounds, average circumference of the chest two feet ten inches, circumference of the clenched fist about eleven inches, average of facial angle 66½, average temperature under the tongue 100·02."

*H. N. Ridley.*



[No. 42.]

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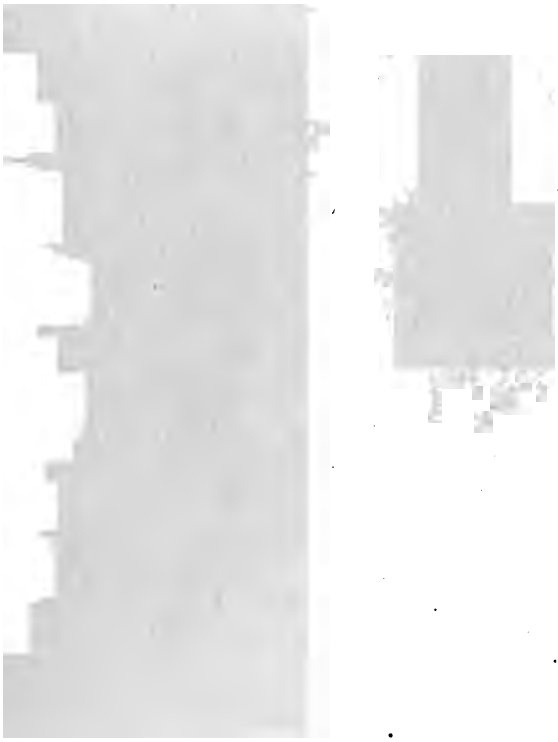
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# Various methods of computing the time for planting among the races of Borneo.

By Dr. Charles Hose.

Agriculture, even if rude, is at once a token and a cause of primitive culture. The native of Borneo has no special reason to pay attention to the phenomena among which he lives, unless he is a farmer. He may, like the Punan, know the lie of the land for miles around, and be able to judge the slightest indications of the jungle, but that is hardly knowledge which leads to civilization. The farmer, on the other hand, has to study the course of the seasons, the nature of the soil and the variability of animals and plants.

There are certain special problems which have presented themselves to the uncultured farmer in Borneo, which would not cause the least difficulty to an European in a temperate climate. In the tropics as everywhere else, agriculture is performed with the yearly regularity which is so familiar that to us it seems in no way remarkable. Near the equator, of course, seasons have not as a rule the same striking character that they have in higher latitudes. In Borneo from October to April the wind is usually from the north-east, and brings rain, more to some districts than to others, while during the rest of the year the monsoon is reversed, but there is little else to distinguish one month's weather from another. It is almost impossible to tell the time of year from temperature or moisture, and quite impossible to do so with any accuracy.

The farmers have found, nevertheless, that certain seasons are more favourable than others to their operations. It is not so much the crop which requires to be sown and reaped at particular times, as the ground, whose preparation is difficult in

wet weather. Rice will grow and ripen in a sufficiently warm, sunny climate provided there is enough water on the land, either from irrigation or continual showers.

In Borneo there is usually rain all round the year in magnificent quantity. It is not according to the rainiest season, but according to the driest that the farmer regulates his work. For the jungle is felled and left to dry before being burnt, and the success of the crop depends largely on the completeness of the clearing. The best crop will be generally obtained on land burnt off at the driest season.

How are these illiterate tribes to find out when a particular season has arrived? In England this is simple enough; we have almanacks galore, we have clocks which can tell us the length of time from sunrise to sunset. The native does not know how many days there are in a year, and would not take the trouble to keep count if he did. He may know how many moons there are, but like the Malays he would probably get about eleven days wrong every year, and eleven days is a large error of itself. In two or three years the crops would be planted far too early. Unfortunately, too, the length of the day varies very little in the tropics, and the native has no means of observing that variation. He is therefore obliged to have recourse to the stars or the sun to tell the time of year.

The Dayaks and many of the less important tribes look to the stars to guide them. Every day, as they know, these bodies rise a little earlier, and some wise man is appointed to go out before dawn to watch for the Pleiades. Dayaks use the Malay expressions "*bintang tiga*" for Orion's belt, and "*bintang banyak*" or *Apai andau* (the father of the day) for the Pleiades. When the "seven stars" rise while it is yet dark, it is time to begin.

Two of the house are sent into the jungle to find omens, while the others wait. In two days perhaps, or a fortnight, or at most a month, the favourable indications will appear, and then an end is made both of science and superstition and the Dayaks set to work on the forest. If they are so late that Orion's belt rises before daybreak, they must make every effort to regain lost time or the crop will be poor. What kind of land they will choose depends on circumstances: in any case it will have lain two or three years fallow and will be thickly covered with vegetation.

The virgin forest, though less easy to fell, has this advantage over previously cleared ground, that no grass is growing on the land and much trouble in weeding is avoided. But the men do the felling, the women most of the weeding, and whether a choice is made of forest or scrub will depend largely on the courtesy and consideration shown by the men for their wives and daughters. If the forest is chosen, the men, sometimes helped by their womenfolk, cut down the undergrowth and small trees with their parangs, and then begin to attack the great trunks from slight platforms well above the ground, which enable them to avoid buttresses and roots. The felling is usually accomplished in this manner. The ground being as a rule the sloping side of a hill, each tree is cut through from one side nearly to the core, and on the opposite side an equal distance a little lower down the trunk. The lower cut is made on the side facing down hill. By dint of much labour, in which the various members of a village generally come to help their comrades, a whole hill side of trees is cut through till a slight blow will hurl them to the ground. Two heavy trunks at the summit are then felled, and made to fall on the neighbouring trees. These fall in their turn, and carry with them those below, till with a loud roar and a mighty rush of wind a V shaped space is cleared on the slope below. Like a pack of cards the forest monsters are laid low, to the intense excitement and delight of the howling spectators.

Then again the Dayaks await the permission of the stars for the next operation. Only when the Pleiades are at the zenith before dawn do they think if advisable to burn and sow. By this time, unless the weather has been wet, an unlikely circumstance at the season of year, the boughs are dry as match wood and the leaves are dead, though still on the twigs. Some hot day, towards noon, when a breeze is blowing, they take down special charms to secure wind, and also endeavour to attract the Æolian spirits by keeping up a loud whirr. The mass of dead wood is then set on fire. The flames rise to the skies and fill the country with smoke, while the added heat of the fire is almost insupportable. Insects with singed wings buzz around, and the hawks dive into the smoke to find their prey. The spectacle is grand indeed. Sometimes wet weather keeps

the wood damp until the leaves fall from the twigs, and then the land is often left untilled, for it is nearly useless. When the fire has passed over the fallen timber, deep layer of ashes and charred trunks is all that is left. The partially burnt wood is heaped round a stump and again ignited, till little save ashes, occasional stumps, and islands of green trees left to preserve valuable fruit, are to be seen in the clearing. The rice is then dropped by the women, a few grains at a time, into holes made by the men with pointed sticks; perhaps cucumber, maize and other sundry plants are sown round stumps or where the ash is especially thick; and the crop is left to the weeding of the people and the fertility of a warm, moist climate and virgin soil.

The Kenyahs and Kayans judge the seasons by the sun, and the method they adopt displays a wonderful knowledge of the precautions necessary to accuracy. The Kenyahs measure the shadow cast at midday with an instrument the Greeks would have called a gnomon. It is a pole set up near the village, guarded by a fence to keep away mischievous children and animals. In height it is more than a fathom by the span of the thumb and first finger. A piece of string weighted at each end and thrown over the top shows when it is perfectly upright. The length of the shadow is measured by a stick called "*asu do*" which is marked with notches gradually approaching one another more closely as they get further from the pole.

The interval between successive notches represents the change in the length of the shadow in three days. Midday is known to be the time when the shadow cast by the sun is at its shortest, and the Kenyahs are also aware of the fact that the direction of the shadow at noon, though sometimes to the north sometimes to the south, is always in the same straight line. The Kayan method, which differs more in practice than in theory from the Kenyah, is to let in a beam of light through a hole in the roof and measure the distance from the point immediately beneath the hole to the place where the light reaches the floor. Their measure is a plank, made level so that round discs do not roll on it, and fixed in position and direction by chocks placed at the side. This shows that they know the sun to be always due north or due south at noon.

I can only suggest one reason why these people though they have got so far, have not invented a sun-dial. That is this. In the tropics there are many days near each equinox on which no sun-dial would be of use. When the sun in its yearly course passes from the north of the zenith to the south, its shadow is due west in the morning hours, due east in the afternoon. Any time-piece depending on the direction of the shadow must therefore fail. The difficulty might indeed be obviated, but no sundial could be devised which would in the tropics tell the time in every month of the year.

This then is their instrument, in which no point essential to accuracy has been neglected. The measuring stick has been notched in accordance with the experience of previous years, and when the shadow, after lengthening during May and June, begins again to grow less, the house assembles and by mutual consent they decide when to plant. The best time for planting has not arrived until the noonday shadow is the length of the forearm from the tip of the fingers to the inside of the elbow. When the shadow is less than the length of the hand, sowing is not likely to prove very productive. The measuring stick is left in charge of some old and presumably wise man, less capable than his fellows of hard work, who sees to it that the shadow is not measured obliquely and reports the favourable moment. This man is excused from farming and is supplied with necessaries in return for his services. In good years he naturally is very well treated.

It would be pleasant to stop here, and say that otherwise the Kenyahs care nothing about the heavenly bodies. But having given the bright side of the picture and shown how they have acquired some accurate knowledge, the result of long and genuine experience, it is only fair to state that they lay almost equal importance on the meaningless mummery with which these mysterious measurements are accompanied. Such important operations could hardly fail to be overlaid with superstition.

# Notes of Visits to Puket, Ghirbee and Trang.

By C. W. KYNNERSLEY.

Left Penang at 5 p.m. on Friday, 27th February, 1903, in s. s. *Avagyee*, (owned by KOE GUAN,) which trades between Penang and Rangoon calling at the Siamese ports *en route*.

Arrived at Pukét at 2.30 p.m. on 28th. Since I was there two years ago quarantine sheds have been put up opposite the light-house and there is said to be a good water supply there.

The harbour continues to silt up and undoubtedly the mining works have made matters worse. Where I landed last time is now a high mud flat which I hear is going to be mined.

The site of the present town is all tin land. The principal road to the landing place has been diverted to allow a mine to be opened. Borings are being taken by the Government Offices and if tin is found the site will be sold and new Offices built elsewhere. Everything is sacrificed to the mines. At the present price ($97) it pays well to work mines which were given up at my last visit when tin was about $60. SIM BEE has been very busy laying out new roads. The road which the late Commissioner was opening up has of course been abandoned as a bad one. A new road (60 feet) has been laid out by the edge of a new mine parallel to the principal shop street, the land on either side which is low being filled in with the overburden from the mine. Shop houses will be built and a new market erected. I noticed several improvements since my last visit. Then the place swarmed with pigs. These have been banished outside the town. On the outskirts of the town among the brushwood I noticed the mounds of new Chinese graves. SIM BEE said he was going to stop indiscriminate burying and have a Chinese Cemetery. The last Commissioner said the same. The last

Commissioner told me he had put a stop to clearing hill sides for hill padi. SIM BEE said he had stopped it. Jungle fires are still frequent and there is no timber to speak of left near Tongkah. SIM BEE talks of a Forest Department under an Officer from Bangkok. A beginning has been made to put the main road to Naito (the other mining centre) into repair and a mile and a half has been done. A new road is also being made in the direction of Pa Prak, the old telegraph trace made by the former Commissioner, with poles and wires still standing, being abandoned as bad. New poles have been ordered and the wire will shortly arrive. I was assured that the line would be in working order in a few months. The trace goes through Kesúm, Pungá, Ghirbee and Trang to Na-kón when it joins the line from Kedah to Siam.

Cultivation does not seem to be encouraged and no one cares to plant so long as mining pays so much better. The mines absorb all the labour. Rice, fruit and provisions of all kinds are imported. It is a splendid place for coconuts but hardly any are planted. Fruit and vegetables come from Penang. I went to see the Judge sitting in Court. He is not overworked. There are about two cases a day. Only five people were present including a prosperous looking Chinese interpreter. We then went to the Court below which is presided over by the Ampúr who takes all petty cases and preliminary enquiries. Most cases are compromised. There is said to be little crime or disorder. Everybody is hard at work making money at the mines. The Ampúrs are poorly paid and it cannot be wondered at that they supplement their salaries.

After lunch I started for the mining town at Naito. We were escorted by two Siamese armed Police mounted on little Siamese ponies which trotted behind the carriage. At the place where the good road ends and a bridge is to be built we got into a Java pony-trap. From this point the state of the road is too awful for words, big stones, ruts and holes. It is certainly the worst road I ever attempted to drive over but we got along somehow—generally at a walk. When it was hilly we got out and walked. The jolting was frightful. Naito is about six miles off and we passed through open grass country with scrub on which buffaloes were grazing. The whole coun-

try seems full of tin. Among the low jungle hills cuttings have been made and in the wet season the tin is washed down. Naito has a large Chinese mining population and consists of a long street. Hundreds of coolies were assembled and the Gambling Farm was densely packed. Only Chinese are allowed to gamble, not the Siamese. We looked in at the Ampúr's Office and then walked on a mile or so along a sort of road in the direction of the highest hills (about 1,700 feet) through which there is a pass where there is a wonderful acqueduct on trestles across the valley constructed by Chinese for bringing water to the mines. We had no time to go there but I have seen a photograph of it. Returning to Naito we had some tea at a Chinese Toukeh's. I asked what he thought of the road He seemed hopeful and said it would be all right next year. He added that it used to be worse but this I think is impossible. There is a great deal of traffic on it, a stream of mining coolies, a good many buffalo carts and some gharries such as are used in Province Wellesley. Naito is famous for its water melons which are sent to Penang. One of the duties of the Ampúr, who is a sort of District Officer, is to report on mining applications and find out if the land is owned by anyone. They get low salaries, and are often corrupt.

After saying goodbye I entered a small dug-out which was hauled by 8 Siamese over a mud flat (dry) into the river or creek, whence in a boat we went off to the *Daurong Rat* which SIM BEE kindly placed at my disposal. He came on board to see me off and at 8·30 we steamed out of the harbour. The nephew accompanied me and I felt quite at home once more on the *Rat*. I had been solemnly warned in writing on good authority that the boilers of the *Rat* were pronounced to be in a dangerous condition and I was warned not to go in her. I had however arranged to go in her and it was only an additional peril to a voyage in this rock-studded sea. I mentioned to JOO KEAT that I had been told the boilers were rather old. He said the Engineer of the *Ran Ruk* had patched them up and there were to be new boilers *next year*. This was consoling. It was blowing fresh but was not very rough. As we dodged among some rocky islands I said "I suppose the Captain knows the way?" I was informed that there were two Captains. After

this I rested in peace. Passed a long island on the left of Pulau Panjang where there are said to be 300 or 400 Malays who plant mangostins, the soil being good, and a few Chinese who advance money to Malay fishermen. No signs of habitation were visible and it was said they were at the back of the island. Passed under some high limestone rocks with caves with rattans hanging down said to be used by edible birds-nest collectors. No sign of life till a little North of Ghirbee where there was a fringe of coconuts with a mountain somewhat like Kedah Peak inland (Khaw phanum.) There were masses of limestone hills as at Pungá but not so high. There are two mouths to the Ghirbee river and we followed the one to the right, the usual mangrove creek, and after two or three bends came to a landing stage on the right bank about 1.30.

The Assistant Governor came off in a house boat and I was received on the jetty by the Governor whom I had met before at Trang. Officials and a Police guard were drawn up. This is the new town site. The Governor took us to a temporary house where we were served with tea and cigarettes. He said "This is a poor house. I am making the new road you see and I hoped to move the town here but it will not be till *next year*." I said I should very much like to see it and we walked round preceded by Police with a man carrying an umbrella over me. The Siamese seem to have a craze for moving towns. It is interesting work no doubt and gives the Governor something to do but when these new roads—a kind of circular road with two roads leading to the sea and a very steep one to a wharf on the river—are completed the question is whether, except under compulsion, the people in the old town or village some miles further up the river will occupy the sites. The site is said to have been approved by Prince DAMRONG. I had not time to visit the present town so I cannot say if it is worth moving. As in all new Siamese roads trees are planted at intervals on either side of the road but the ansana stumps (*Pterocarpus endicus*) do not seem to grow as they do in the Straits probably owing to the prolonged drought. Other trees are doing well. The Governor is a pleasant genial man and a sportsman. He talks a certain amount of English. He said it was a very good country for sport. He had shot an elephant and another was shot a few days ago.

There were also deer and rhinoceros and tigers. There is little cultivation in Ghirbee and no tin. The revenue is very small but no doubt it has undeveloped resources. The coal or rather lignite is of no value. He said that people were afraid to settle there till he came on account of dacoits. Two Siamese murdered a Chinaman and robbed his house and then killed an old woman to keep her mouth shut. They were caught and executed at the place. I had heard of an execution recently taking place and asked if that was the case. He informed me that the affair took place over two years ago and the men had just been executed. The law's delays were in this case protracted. I asked if it wasn't rather a long time to keep the men under sentence but he said: "We had to get the order from Bangkok and then they appealed." I told KEAT if they wanted a name for the new town they might call it Pi Nah (next year)* On our return we were regaled with long glasses of coconut water and cigars. At 2.30 we took leave as the tide was falling. We had intended taking a short cut through an inner channel inside Khaw Fu and Ma Fu but they said there was only a depth of 3 feet in places and many rocks, so we went out to sea and round Pulau Lantar. This took a long time and it got dark. We passed several rocks and islands and did not get to Telibon anchorage till 11.30 p.m. when I turned in on deck. The wind had blown from the West all day but at night there was a land wind. We found the Tongkah Police launch at anchor. She had been sent on ahead to inform the Governor of Trang of my visit.

*Wednesday, 4th March.*—Got up about 7 a.m. and after tea landed at the Custom House—a few Sam-sam huts—fine beach for coconuts but only one growing A Chinaman advances money to fishermen and bark collectors. Very low tide early, turned about 7.30 when we started. Anchored at 9.30 at firewood jetty up Trang river and waited for tide to rise—breakfast. At 10.30 stuck on mud bank and waited ½ an hour till enough water. Got to Kantán at 11.30. Pepper and fowls being put on junk for Penang. The Governor PHRA SUTHON on landing place, Police Guard, 3 carriages Scarlet (faded) livery. Drove

*Spain is the land of Manana, in Siam it is always "Pi nah."

to SIM BEE'S house and bathed. He mentioned Yong Setàr the chief place in Pelian and I asked what 'Yong' was. He said it was the Siamese contraction of Tanjong. I think there is no doubt that Junk Ceylon is a corruption of Yong (Tanjong) Phalúng or Salúng. Phalúng was the great mining place before Tongkah mines were worked at the end of the promontory or island which we call Junk Ceylon. I never quite believed in the 'Ujong Sálang' derivation. There is no town at Kantán which is the seat of Government. The former town of Kuantāní was demolished about 10 years ago. It is about 6 miles higher up the river. On the opposite side of the road facing the wharf at Kantán is a row of about half a dozen Chinese shops an this constitutes the town. The houses of the Officials are built along a country road and the Government Offices (still in course of construction) stand on a low hill above the river and road. After lunch we went on board the launch with the Governor up the river which winds about till we got to the landing place near the site of the abandoned town. We might have driven the whole way but carriages were sent on. Along the banks is a fringe of jungle with padi land beyond. The site of the old town appeared to be a good one, high ground with fine old ansana trees. Only a Wat and a few attap huts remain among fruit trees. We stopped at one place near to see 33 big cannons taken from Kedah when it was overrun by the Siamese. They are piled up among brushwood. The road is a good one. We drove from Kuantāní. It is simply a red earth broad road and in dry weather dusty. There is hardly any wheel traffic but it is largely used by people walking from place to place. It would be excellent for bicycling. We crossed several streams on timber bridges, *gium* a hard wood being used for supports and planking. The village of Bong Rat was passed. Padi fields cultivated by Siamese extended on either side where the land was low. A drive of about 5 miles brought us to the town of Tap Tiang. Along the main street are brick shop houses and there is a considerable Chinese population. A great Market is held every three days. It has been held that morning and I was sorry to miss it for it must be an interesting sight. The Market which is farmed for $100 a month is held in a large square building. Long attap sheds open at the side extend

round the sides and there are two cross sheds. Produce from country is brough in on Market days and disposed of. Meat, fish, poultry, fruit and vegetables have divisions of the Market set apart for them. It is very largely attended. Chinese Societies have been suppressed and the former Kongsi house has been turned into the Ampúr's Office. Along the road from Kantán newly cut telegraph posts were lying and are to be set up shortly. The telegraph goes to Na-kón. The wire from Kedah to Singgora goes through Na-kón to Bangkok. The line is being laid from Kantún to Ghirbee, Pungà, Kesún to Pukét. The posts are of hard wood and cost $1.20 each where felled, being taken to the road by Government. They are said to be ready for putting up as far as Na-kón and in the Eastern State adjoining Trang the Pân palm which is said to be durable is used. Shade trees has been planted the whole way. From Tap Tiang we walked about 2 miles till we reached the Rest house where we were to sleep. It was built for the reception of the King who however did not use it. It is a good house standing high everlooking the plain with the hills in the distance. Trang is famous for its good pepper which commands a high price and is said to have a special aroma. There were plantations on either side of the road. The pepper vine is trained on two sorts of soft wood trees, mengkûdu and dedap. The vines are grown on red soil which is kept clean. During the dry season, which lasts several months, the plants are regularly watered from wells. The planters are all Chinese chiefly Cantonese and a few Hokiens. At Yong Setár pepper is grown in black soil by Tiochews who do not water the plants. If watered when young it has to be continued. To the East are the hills on the way to Na-kón, then the Patâlóng hills with the highest range Foi-dow, and further south Pelian and Setúl. The climate on the East of the hills is said to be quite different. Padi there is two months later and when it is dry this side it is wet beyond the hills. Trang, Girbee and Pungá were formerly under Na-kón which lies to the North of Sang-Kla called by the Malays Singgora. Na-kón is called by the Malays Le-gúr. The Malays, except the fishermen near the coast, hardly speak any Malay. They are Mahomedans and don't eat pork but in other respects they adopt Siamese ways. There are one or two Mosques but they

are badly attended. The Siamese keep pigs. The Chinese marry Siamese girls. No burial grounds are to be seen, the Siamese being cremated at the Wats. There is a Chinese burial ground at Tap Tiang. There are Siamese Schools about the country—education being free. One with 80 boys is about a mile beyond the Rest house and I meant to visit it but had not time. It is held at the Wat and boys from the villages beyond walking distance are lodged at the Wat. The Kam-nán makes boys go to School. There are also Chinese private Schools. The upkeep of the Government Schools, cost of books, etc., is defrayed from the Market rent at Tap Tiang.

The village administration is cheap and appears to be well adapted to the needs of the country. It is the Siamese system either based on, or like that of Burma. There is no forced labour. In Trang are 5 Ampúrs, 1 for Kantán, 1 for Pelian at Yong Setár, 1 for Bong Rat at Tap Tiang, 1 for Khaw Kow (white hill) North of Patălóng and 1 for Si Kow near Ghirbee. The Ampúr holds a Court for the trial or settlement of small cases—cases of importance being sent before the Judge at Kantán. An Ampúr gets 100 Ticals a month and allowances and he probably adds to his income. The only police in the country are at Kantán where they are chiefly ornamental, 12 at Tap Tiang (Chinese town) and a few at Yong Setár, where there are Chinese pepper planters. The Siamese and Malays are very law abiding and give no truble. Under the Ampúr is the Kam-nán or village headman. Of these there are about 30 in Trang. In one or to places where the Chinese predominate a Chinaman is Kam-nán. Under the Kam nán is the Phoo-yai-bán or head of 10 houses. The people of 10 houses or any collection of houses up to 20 elect the Phoo-yai-bán and Phoo-yai-báns elect the Kam-nán, one of their number. The Phoo-yai-bán receives a badge of Office in the shape of 5 silver buttons which he wears on his coat and the Kam-nàn has 5 gilt buttons. At intervals along the road are boards on which is notified the name of the village and the position of the Phoo-yai-bán's house. The village headmen look after the roads and bridges and road side trees, the road being kept up by the people except where it passes padi fields. The coolies who sweep the road and keep it clean are paid. The trees are planted twenty-four feet apart. The only land reve-

nue is a tax on padi land 8 cents a rai=120 square feet. This is paid to the Ampúr who keeps a register. He can keep $300 in his sub-treasury. Over that he must send to Kantán. The Kam-nán and Phoo-yai-bán get 5% commission on this padi-land tax. The owners of padi land have a document of title (corresponding to the Malacca 'extract') giving the name of the owner, the extent of the land and its position. No charge is made for land for other cultivation than rice, *e. g.*, pepper, coconuts. There is an export duty on pepper of 60 cents a pikul (said to be fixed by treaty). The present price for pepper is high $36 a pikul. The export duty on other produce timber, etc., is 10 per cent. *ad valorem* and the import duty is 3 per cent. Chinese get on well with Siamese and in the country go to the Wat. I noticed that men and women all have distinct vaccination marks, this is done by two Siamese doctors at the Ampúr's. There are no taxes—no house tax—except on padi land and on fishing which varies according to the fishing ground from $1 to $10 a year. If other taxes were imposed the Siamese would leave. There is no tax on fruit or coconut plantations or sugar or pepper. Land can be sold, the new owner getting the document of title. There is no tax on felling timber—only export duty. The population of Trang is 59,000—12,000 Malays and Samsams, 4,000 Chinese and the rest Siamese. The Revenue is about $120,000 and the expenditure $80,000. The Opium Farm is not included in the Revenue as it is reckoned as part of the Western States Farm. It may be taken as $65,000.

The Revenue is made up as follows:—

| | |
|---|---|
| Gambling ... ... ... | $25,000 |
| Spirits ... ... ... | 25,000 |
| Customs ... ... ... | 60,000 |
| Land, etc.... ... ... | 10,000 |
| | $120,000 |

Including the share in the General Opium Farm the Revenue exceeds the Expenditure, (*i. e.*, what is sanctioned in the Budget) by about $100,000 which is remitted to Bangkok to provide for the needs of the poorer States. There is a proposal

to abolish the Gambling Farm and impose a poll tax on all males over 18. In the Eastern States where there are few Chinese this has been done. Since the Siamese were prohibited from gambling there has been scarcely any crime. Cock fighting is very popular.

The expenditure may be roughly stated as follows:—

| | |
|---|---|
| Salaries ... ... ... | $30,000 |
| Roads, etc. ... ... ... | 20,000 |
| Buildings ... ... ... | 20,000 |
| Other Expenditure ... ... | 10,000 |
| | $80,000 * |

(*Diary continued*)

We got to the Rest house at 7.30 p.m. and had to wait for the cook and boys.

*Thursday, 5th March.*—It was not as cool as it ought to have been. When we got there the Governor said "It is not cool now because there is a wind—if there is no wind it is cool." The wind died down and then it was unmistakeably hot. We made a start at 6.40, KIAT driving me in a dogcart and the Governor following on a pony. The horse was inclined to jib and was only induced to go on (except down hill) by the syce shoving behind. I remarked that we should take some time to get to our destination (11 miles) but KIAT said "It will go very well when it gets tired." There seemed to be little prospect of this so long as the syce pushed us along but when once started it covered the ground well. On sighting a bridge the custom in Trang is for the syce to get down and test the bridge to see if it will bear. We passed through an extensive padi tract—a good deal of it being recently cleared. The Siamese, I should say, are quite as lazy as Malays if not more so. The ground planted with padi is only roughly cleared of timber, and stumps of trees are left. In time these become white ant mounds which are undisturbed—"too much trouble to remove" they say. I saw a large number of fine damar oil trees, some standing alone in the plain and some hundred or so together. The solitary

* Figures only approximate not official.

ones are tapped with burning holes and these trees would only last about 5 years. They are not allowed to be filled when the jungle is cleared for padi planting. The oil is sent to Penang in tins. There are said to be many damar trees on the Na-kón road and on the islands. SIM BEE told me that when he went to Trang the only talk was of dacoits and people were afraid to settle. Now they are not afraid and land is being taken up fast. The road was being swept like a drive and where there was a collection of houses the people turned out with their headmen and saluted by the roadside. The road was more or less level till we got to the foot of the hills (11 miles). At Chong is a rest-house and a clear stream from the hills. The road to Patālóng here rises through a pass. We walked through jungle along a path to what is called a Waterfall, large slabs of rock and pools but not much fall. In the rains of course it is a cascade. We crossed the stream on stepping stones and looked for orchids. We found a few and then had some food by the stream. Then we drove back to the Rest-house and bathed at a well in the grounds. I noticed *Congea* climbing among the brush wood. We left Chong about 10.0 and got the Rest-house at 11.30. There is another Rest-house 1 hour up the pass above Chong in the jungle where the King of Siam stayed two nights but he is said to have found it too cold. This would be a good place for collecting plants, etc. There are trees planted on either side the whole length of the road—Mangoes, ansana and a Siamese tree with a narrow leaf and yellow flower from which they make hair oil.

As we passed through Tap Tiang to go to the landing place at Tha Chin we saw a dead black panther by the Market. Black panthers are said to be very common. There is a reward for tigers, 30 Ticals, but none for panthers which only take fowls, pigs, etc. There are too many for a reward. There were 12 junks at Tha Chin built locally and registered at Penang. We had a very hot and tedious row in a house-boat—the river winding backwards and forwards—till at 3.15 we got to the wharf at Kuantāní where the S. S. *Artsadong* comes for cargo. Here a Malay Penghulu registered as a British subject came on board. We got to Kantán at 5.0. I landed and drove with the Governor to see the Public Offices—still unfinished. The bricks

are made by prisoners. The Offices will be finished "next year." Left Kantán in the *Damrong Rat* at 5.30. The tide was falling and we touched the first bar or mud flat at the 'Simpang'.

As we went up the river the serang had ordered firewood to be sent to Kantán for us but it never came so in their usual casual way we began our voyage without fuel. At the firewood depôt below the bar we had to anchor for two hours while we took in firewood. It was getting dark and there was no one in charge so they requisitioned boats passing down and eventually our men took a sufficent supply. It was very hot lying at anchor and mosquitoes came off. We had to dine there. As we got to sea there were very black clouds and thunder and lightning. There was a bit of a moon but it came on to blow and the rain drove us below.

*Friday, 6th March.*—Off the north of Lankawis early—cool—went very slow. Six tame porpoises came and played within a foot of our bows and kept it up some time. We took hours to pass Kedah Peak and it was 4.0 p.m. before we got to the Penang Jetty.

# Hunting Invocations.

By R. N. BLAND.

In the October "Blackwood" there is an article by George Maxwell on the subject of a Malay deer-hunt in Perak. I think he has given some excellent translations of the "Elmu Pawang" as applied to the rusa or sambur deer, and written a most interesting account of the way in which the Pawang sets to work. It may interest him and others to see an invocation I got from a Pawang in the Negri Sembilan (Kuala Pilah) years ago. My "Elmu Pawang" is not nearly so ornate as George Maxwell's, but no doubt every village and district has its own ritual in these matters. There is a family likeness, however, in all of them. The Pawang who is an educated man from the Malay point of view, will produce a much more elaborate "elmu" than the Pawang of a jungle village. It is interesting to compare notes in these matters and therefore I send you this "elmu" for the S. B. R. A. S.—but I feel as if I were betraying a secret in doing so. These matters are highly confidential. My Pawang only admitted me to his "craft" under promise of secrecy and in payment of the customary fees in cloth, knife, coconuts, and "wang bharu", and after following the deer on foot for many days through the Muar jungles.

## Elmu Pawang Buru Rusa.

*(Negri Sembilan.)*

Hei Che' Lanang, Che' Redup,
Che' Bendang, Che' Merah,
Mari-lah kita berburu
Dalam kandang bhagian engkau
Luar kandang bhagian aku
Apa main kita jangan di-rosakkan

Aku tahu jahat-nya
Aku tahu baik-nya
Jahat pulang pada engkau
Baik pulang pada aku
Salah sa'ekor srigala Che' Langsat
Che' raia ini ia-lah melengkah bumi
Yang lari Che' Runsing
Kaki yang mengijar Che' Rimbun
Ekor melampat patah kaki
Menyenup patah pinggang
Menyelodok badan kau lampoh
Bukan-nya aku yang berburu
Perpatih yang berburu
Bukan-nya aku yang punya anjing
Pa sidi yang punya anjing
Bukan-nya aku yang berkuei
Nenek Batin Telang yang berkuei
Jangan engkau mungkirkan janji
Jikalau engkau mungkirkan janji
Drahka engkau pada Allah.
Hei Che' Lanang Che' Redup
Che' Bendang Che' Merah
Ambil bhagian engkau
Yang terbawa bhagian aku
Yang tinggal bhagian angkau.

## Badi.

Hei Badi aku tahu asal engkau
Jadi deri-pada Chaga
Beranjak engkau deri sini
Pulang engkau ka asal jadi
Kropek nama-nya manchong
Kiamang nama-nya kiak
Che' Lanang orang gobala
Tergak Dato' nibong salah
Mari-lah kita membalakan anjing
Bunohkan juga anjing aku
Sa'ekor sa hari bunokkan juga
Anjing aku.

*Translation.*

Ye (forest spirits that guard the red-deer)
Che' Lanang—the Twister
Che' Redup—the Dim One.
Che' Bendang (the open plain)
Che' Merah—the Red One
I summon you to hunt with me
What comes from the enclosed fields is your share
What comes from the outer forest shall be mine
Let nothing spoil our hunting
I know what to avoid
I know what to follow
May all the bad luck be your share
May all the good luck fall to me.

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Whether it be Srigala or Che' Langsat
Or the King of the Deer himself
Yea, he who crosses the world at one leap
Or Che' Runsing who flashes hither and thither
May each one that leaps forth fall with broken legs
May each glider be broken across the back
May each one crushing through the bushes have broken bones
It is not I who destroys you
It is the Lord Perpatih who hunts you
The dogs are not my dogs
They are the dogs of Pa' Sidi
It is not I who shouts on the dogs
It is the shout of Nenek Batin Pelang
Fail ye not in your compact
If ye fail in your compact ye are rebellious against Allah.
O Che' Langsat—the Twister
Che' Redup—the Dim One
Che' Bendang—the "open plain"
Che' Merah—the Red One
Take what is yours
That which is carried away is mine
That which remains is yours.

## Badi—Invocation.

O Badi I know whence thou comest
Thou comest from Chaga
Get thee from hence
Get thee to the place whence thou comest
Che' Lanang the herdsman
Remember the elder of the magic nibong
Come hither and make atonement for our dogs
Shouldst thou wish to slay my dogs
Slay them, yes, one every day.

# Descriptions of New Species of *Iphiaulax* and *Chaolta* (*Braconidae*) from Sarawak, Borneo.

By P. Cameron.

It is evident that the genus *Iphiaulax* is, in the Tropics at least, one of the largest of the Parasitic Hymenoptera. Mr. Shelford, the collector of the species here described, informs me that he has a large number of species which still remain to be described or named.

## Iphiaulax Foerster.

*a. Luteous, the wings large, yellowish-hyaline, the stigma with a black mark at the base.* The group of *leptopterus*.

*Iphiaulax megapterus* sp. nov.

Dark luteous, the 2nd. and following segments of abdomen much darker, almost black; flagellum of antennæ black; wings very large, yellowish-hyaline; a somewhat square black spot at the base of the stigma, commencing shortly behind the cubitus and transverse basal, and backwards extending shortly beyond the cubitus; there is a narrow cloud on the lower side of the wing at the apex; the hind wing has the apical fourth fuscous, the cloud on the lower side extending backwards to the middle; basal 5 segments of abdomen closely, longitudinally striated; the area on 2nd segment large, reaching to the end; broad at the base, becoming gradually narrowed to the apex. Apical abscissa of radius long; more than half the length of 2nd., which is distinctly shorter than the 3rd., that being not much longer than the basal two united; the recurrent nervure is received in the apex of the 1st cubital cellule; the 1st transverse cubital nervure is roundly obliquely curved. ♀.

Length 20; terebra 17 mm.

*Hab.* Matang.

Scape of antennæ not much longer than the following 2 joints united, slightly gradually dilated towards the apex, which is toothed slightly below; the pedicle short, not clearly separated, thickly pilose, not half the length of 3rd. joint. Front and vertex smooth and shining, almost bare, the former not furrowed; face irregularly shagreened, thickly covered with long fulvous pubescence; its centre bounded by longitudinal furrows; apex of mandibles black. Thorax shining, smooth; the middle lobe of mesonotum raised; median segment short, covered with pale fulvous pubescence. Legs coloured like the thorax, sparsely haired; the fore tibiæ not quite so long as the basal 3 joints of the tarsi. Abdomen large, its middle clearly broader than the thorax, and twice its length; its first segment keeled down the middle; the dilated apical part with some stout longitudinal striæ and obliquely narrowed at the base; the 2nd. segment is closely, longitudinally striated throughout; the 3rd. similarly striated to the middle, the 4th. before the furrow; the base of the 3rd and 4th smooth and shining; the rest of them and the 5th closely rugosely punctured; the apical segments less strongly punctured; all the transverse furrows are deep and strongly striated; the obliqued lateral furrows are short, indistinct. Temples broad, rounded; occiput roundly incised.

This species has the large yellow wings, with black spot at the base of stigma and general colouration of *I. leptopterus;* but it is much larger and more stoutly built; otherwise it may be separated from *leptopterus* and its allies by the striated, punctured abdomen, by the curved 1st. transverse cubital nervure and by the much shorter, compared with the 3rd., 2nd. abscissa of radius.

*Iphiaulax leptopterus* Cam.

The ♂ of this species has been taken at Santubong, 2600 feet by Mr. Shelford. It agrees closely with the ♀.

*Iphiaulax spilostigmus* sp. nov.

Luteous; the wings and their nervures luteous, a square black mark, not extending beyond the cubitus, at the base of

the stigma, the hind wings with a fuscous cloud at the apex; the 3rd. abscissa of radius almost equal in length to the 2nd.; the 1st transverse cubital nervure and recurrent straight, oblique, interstitial; the basal two segments of abdomen striated in part. ♀.

Length 12; terebra 6 mm.

*Hab.* Matang.

Face covered with long blackish hair; front deeply furrowed in the middle; temples roundly narrowed; occiput transverse. Scape and pedicle of antennæ rufous, the rest black. Thorax smooth and shining; the middle lobe of mesonotum raised in front. Fore tibiæ slightly shorter than the basal 3 joints of tarsi united. Wings long, large; yellowish-hyaline; the mark at base of stigma is square, does not project beyond the transverse basal or cubitus; the 2nd. abscissa of radius equal in length to the 3rd.; the recurrent nervure is interstitial. Abdomen as long as the head and thorax united. First segment of abdomen broad, shorter than the second segment; the central part roundly raised; irregularly longitudinally striated; a stout keel thickened at the base and furrowed laterally, down its centre; the 2nd. stoutly striated to near the apex; the central plate, broader than long, narrowed to a point, smooth and shining; its keel extending to the smooth apical border; on either side is a somewhat similar smooth, broader than long, triangular plate; the suturiform articulation closely striated; the other furrows, smooth; there is a striated transverse furrow before the apex of the 2nd. segment; the abdomen is as long as the head and thorax united and broader than the latter.

This species may be known from *I. leptopterus* by the basal abdominal segments being striated, by the shorter and broader abdomen and by the stigmal mark not extending beyond the cubitus.

*b. Luteous, the wings large, yellowish-hyaline, without a black mark at the base of stigma; the hind femora black.*

*Iphiaulax minos* sp. nov.

Luteous, the flagellum of antennæ and hind femora black; the apex of hind tibiæ blackish; wings longer than the body,

yellowish-hyaline; the stigma and nervures luteous; the costa darker coloured; the 3rd. abscissa of radius nearly as long as the basal two united; the 3rd. abscissa of cubitus distinctly shorter than the 2nd.; the 1st fully half the length of 2nd.; recurrent nervure received close to the apex of the 1st. cubital cellule. ♀.

Length 15; terebra 9 mm.

*Hab.* Matang.

Face distinctly punctured round the sides and top; the centre smooth and slightly convex; the front is less strongly punctured, its middle depressed and furrowed; temples roundly, obliquely narrowed. Thorax smooth and shining; the parapsidal furrows deep on the basal half of mesonotum. Scutellum smooth, roundly convex. Basal two segments of abdomen strongly, longitudinally striated; the 1st. if anything, more coarsely than the 2nd.; the basal half of the 3rd. finely and closely striated; lateral furrows of the 1st stoutly, transversely striated; the 2nd. and 3rd. are depressed largely on the sides; the suturiform articulation and the furrow on the next segment narrow, deep, closely straited. Legs densely covered with pale hair; the fore tibiæ distinctly longer than the following two, but not so long as the following 3, united.

Has the long yellow wings of the *leptopterus*-group; but wants the black stigmal mark; and hind femora are black, this last being a well-marked feature.

*c. Head, thorax and fore legs rufous, the abdomen and hind legs black; wings yellowish, obscured with fuscous;* large. The group of I. *Sadyates.*

*Iphiaulax soranus* sp. nov.

Black; head, thorax and 4 front legs ferruginous; wings hyaline, the basal half with a distinct yellowish tinge; nervures and costa testaceous-yellow, the costa black; third abscissa of radius slightly shorter than the 2nd.; recurrent nervure received in the apex of the 1st. cubital cellule; the transverse median nervure on the outerside of the tranverse basal. ♀.

Length 15; terebra 16 mm.

*Hab.* Matang. December.

Abdomen longer than the head and thorax united (its basal 3 segments as long as the thorax) not dilated in the middle; the centre part, except at the base and narrowly at the apex, strongly irregularly longitudinally striated and laterally irregularly reticulated; the 2nd. segment strongly longitudinally striated; its basal area small, longer than broad, smooth, shining, gradually narrowed to the apex; its keel stout, reaching to the apex; on either side the base has a large smooth space, longer than broad and produced on the outer side towards the middle of the segment, this part being slightly curved and aciculated, almost striated. Suturiform articulation wide, closely striated; the lateral branch is narrower, closely striated and curved; the space between it and the articulation raised, smooth and shining; the 3rd. segment is more finely and closely striated on the basal two-thirds and has a keel down the centre of the striated part; the furrow on the base of the 4th. segment is distinct, deep and irregularly sparsely striated; the base of the segment is finely irregularly, closely striated and with a keel in the middle. Ovipositor sheaths broad, densely covered with stiff black hair. Scape of antennæ about 4 times longer than wide, narrowed at the base. Temples rounded, slightly oblique, as long as the antennal scape; occiput transverse. Face irregularly rugose, pale yellowish. Palpi dark red; mandibles reddish, black at apex.

*Iphiaulax ezerias*, sp. nov.

Black; the basal 2 joints of antennæ, head, thorax and 4 front legs red; wings hyaline, highly iridescent, faintly tinted with yellow; the stigma and nervures pale testaceous, costa darker coloured, parastigma black; 2nd. and 3rd. abscissæ of radius equal in length.

Length 8 mm.

*Hab.* Kuching. September.

Scape of antennæ about 4 times longer than wide, covered with long glistening white hair; 3rd. joint longer than 4th. Front and vertex smooth and shining; front broadly depressed in the middle; the depression roundly narrowed above; in its centre are 2 short, stout keels, oblique and united together above.

Temples longer than antennal scape, broadly rounded behind; occiput not quite transverse. Face strongly and closely punctured; its centre raised, roundly narrowed above, more shining and more widely punctured. Clypeus clearly separated by a furrow from the face, smooth, except for a transverse row of large punctures in the middle. Palpi and mandibles rufo-testaceous, the latter black at apex. Thorax smooth; the middle lobe of mesonotum clearly separated; metanotum covered with pale hair, punctured, its apex blackish and obscurely punctured. Basal segment of abdomen raised in the middle; the sides stoutly keeled; and there is a stout keel down the centre; 2nd., 3rd. and 4th. segments closely, strongly, longitudinally striated; the apices of the 3rd. and 4th. smooth; the base of 5th. finely striated; the area on the base of 2nd. segment becomes gradually narrowed into the keel which reaches to the basal third of the segment; it is bordered by 2 oblique keels which form a large, somewhat triangular area, which is irregularly reticulated on the inner side and irregularly longitudinally striated on outer; the lateral depression stoutly, closely, obliquely striated; the sides of the 3rd. segments are depressed and less closely punctured.

*Iphiaulax cyrenius*, sp. nov.

Black; the 4 front legs, head, pro- and mesothorax and lower half of metapleuræ rufous; wings fuscous-violaceous, the nervures and stigma black; fore tarsi more than twice the length of tibiæ, their basal 2 joints being longer than the latter; basal plate of 2nd. abdominal segment small, roundly, gradually narrowed to the apex and with a smaller, smooth, triangular plate on either side; the keel extends to the apex, where it ends in a small, broader than long, plate. ♀.

Length 13-14 mm.; terebra 13 mm.

*Hab.* Kuching. December.

Face smooth and shining in the centre, the centre being flat, bell-shaped; the sides punctured; the sides and clypeus covered with long blackish hair. Ocelli enclosed by a U shaped furrow, from which a furrow runs to the base of antennæ. Temples longer than the scape of antennæ, rounded behind; the occiput roundly incised. Scape of antennæ thick about 3 times longer

than wide; the tubercles prominent; the base of scape incised on the outer side to near the middle. Parapsidal furrows distinct: the middle lobe of mesonotum not much raised. Apex of metanotum with longish narrow foveæ, bounded by raised keels; its centre with a fovea. First abdominal segment from near the basal depression stoutly, closely, longitudinally striated; the lateral furrows stoutly, closely transversely striated; 2nd segment closely, stoutly striated; a keel runs from the lateral basal plates to near the apex; the space on either side of it closely striated; the 3rd. segment has the middle and apex smooth, the rest closely, not very strongly, striated the centre of the base laterally being smooth; there are no distinct oblique furrows on the 2nd. and 3rd. segments; the suturiform articulation is closely striated. Sheaths of ovipositor broad, densely pilose. The legs are thickly pilose, but not so densely as the ovipositor's sheath.

*d. Luteous, the apical segments of abdomen black, the 2nd. and 3rd. segments strongly striated; wings fuscous, broadly yellowish-hyaline at the base.*

*Iphiaulax zaraces*, sp. nov.

Luteous, antennæ, front broadly in the centre, the mark continued on to the ocellar region and becoming united to a large black band on the vertex; this marks reaches to the eyes and extends half way down the outer orbits and on to the occiput, which is entirely black; the 2nd. and 3rd. abdominal segments are largely marked with black; the 4th. and following entirely black. Head and legs of a paler yellow colour than the thorax and abdomen; the apex of hind tibiæ and the tarsi black. Wings yellowish-hyaline to the transverse median and transverse basal nervures; the rest (except for a hyaline cloud in the fore half of the 1st. cubital cellule and a small one at the junction of the recurrent with the cubitus) dark fuscous; the base of the stigma yellow. ♀.

Length 14-15 mm.; terebra 4 mm.

*Hab.* Kuching.

Antennæ longer than the body; the scape slightly more than twice longer than broad. Head smooth; almost bare; the

face pale yellow; malar space hollowed; tips of mandibles black. Temples wide; occiput roundly incised. Thorax smooth; parapsidal forrows indistinct; furrow at base of scutellum smooth; the oblique furrow on mesopleuræ distinctly defined. The raised centre of 1st. abdominal segment is long, narrowed at the base; becoming gradually wider to the apex; the basal depression is triangular, deep, its lateral keels stout; the central part of the 1st. and the 2nd. and 3rd. segments are closely, strongly striated; there is no area on the base of the 2nd. segment; its sides at the base, as also those of the 3rd., are smooth; the furrows on the 3rd. and 4th are crenulated; 3rd. abscissa of radius about as long as the basal two united; the 3rd. abscissa of cubitus is distinctly shorter than the 2nd.

*e. Yellow, the abdomen and hind legs black, wings fuscous, broadly hyaline at the base.*

*Iphiaulax thespis*, sp. nov.

Head, thorax and 4 anterior legs luteous; the antennæ, abdomen and hind legs black; the wings to the base of cubitus and nervure yellowish-hyaline, the rest fuscous, the base at the base of the anal nervure hyaline; the hind wings yellowish hyaline to shortly beyond the middle; stigma black; the 2nd. abscissa of radius slightly longer than the 3rd. ♀.

Length 9; terebra 8 mm.

*Hab.* Matang. August.

Scape of antennæ about 4 times longer than wide, of equal thickness throughout, covered with short pale pubescence. Front and vertex smooth; the former deeply furrowed; face thickly covered with long white hair. Temples as long as the antennal scape, roundly narrowed; occiput transverse. Thorax shining, the middle lobe of mesonotum raised; the oblique furrow on mesopleuræ reaching near to the apex. Abdomen as long as the head and thorax united and wider than the latter; 1st. segment irregularly striated and with a distinct keel down the centre; the sides and apex yellowish, smooth; 2nd. segment closely, longitudinally striated; its basal area small, smooth, broader than long, obliquely narrowed to the apex; on either side of it is a smooth plate, longish, gradually narrowed to the

apex; the 3rd. segment is irregularly, obscurely striated; the 2 transverse furrows are rufous, striated. Recurrent nervure interstitial.

Agrees closely with *I. portius* Cam.; that species is larger, has the median segment black; the plate on 2nd. abdominal segment larger, obliquely narrowed at base and apex, the 2nd. abscissa of radius distinctly shorter than the 3rd. and the recurrent nervure not interstitial.

*Iphiaulax amyris*, sp. nov.

Rufous, the abdomen, hind tibiæ and tarsi and antennæ black; the wings flavo-hyaline to the transverse basal nervure, the rest fuscous, except for a triangular hyaline cloud in the base of the 1st. discoidal cellule; the 1st. cubital cellule, except its lower third, along the cubitus, the base of the radial cellule, the parts outside the 1st. transverse cubital and recurrent nervures; base of stigma largely luteous; the 3rd. abscissa of radius about two-thirds of the length of 2nd.; the sides of the 1st. abdominal segment above pale yellow; the greater part of the 2nd. and the base of the 3rd. rufous. ♀.

Length 12 mm. terebra 14-15 mm.

*Hab.* Kuching. June.

Scape of antennæ and pedicle rufous below; the apex of scape incised; the 3rd. joint slightly longer than the 4th. Face impunctate, thickly covered with long white hair; temples longer than the scape of antennæ, broadly rounded behind; the centre of occiput transverse. The raised central part of 1st. abdominal segment roundly narrowed behind; the raised central part keeled, the apex closely striated. The 2nd. and 3rd. segments are closely, finely striated, with distinct, oblique lateral furrows; the basal plate of the 2nd. minute, shining, wider than long; the keel distinct, reaching to the apex; suturiform articulation closely striated; there is a narrower, less strongly striated, furrow on the base of the 4th. segment.

The abdomen is about as long as the head and thorax united and is not much widened in the middle; the fore tibiæ are as long as the basal 2 joints of tarsi united; the transverse median nervure is received on the outerside of the transverse basal.

*f*. *Luteous, wings fuscous yellow at the base, the abdomen short, broad, ovate.* The group of *matangensis*.

*Iphiaulax Sibanensis*, sp. nov.

Length 9 mm. ♂.

*Hab.* Mount Siban. May.

Very similar in colouration to *I. matangensis*, having, like it, the head, thorax and legs luteous and the back of the abdomen for the greater part black, mixed with rufous, the wings yellow at the base, fuscous beyond the transverse median nervure; but it is more slenderly built; the scape of the antennæ and pedicle are fulvous, not black, more slender; the 2nd. abscissa of cubitus is only equal in length to the 3rd. not longer than it; it has no area on the base of the 2nd. abdominal segment, but there are two irregular keels uniting together shortly beyond the middle and having 2 or 3 irregular transverse ones; the space on either side of this instead of being, as in *matangensis*, widely, irregularly reticulated to the apex, is only reticulated at the base, the rest being closely, longitudinally striated; the punctuation on all the segments is closer and run more into longitudinal striæ; the abdomen is narrowed compared with the thorax and is more suffused with red, the red too, being lighter in tint; the suturiform articulation is more widely and distinctly dilated backwards at the apex.

*Iphiaulax cilles*, sp. nov.

Luteous, the abdomen darker coloured, the flagellum of antennæ and the hind tibiæ and tarsi black; the wings almost hyaline, iridescent, the stigma and nervures black; the plate on base of 2nd. segment smooth and shining, its length about equal to its greatest width; the apical half roundly narrowed; the keel extends to shortly beyond the middle; 3rd. abscissa about as long as the basal 2 united. ♀.

Length 7; terebra 3 mm.

*Hab.* Kuching. April.

Scape of antennæ luteous, narrowed at the base, about 3 times longer than wide; its apex produced below; pedicle rufous: the 3rd. joint distinctly longer than the 4th. Front and vertex

smooth and shining, temples distinctly, roundly narrowed; face rugosely punctured. Middle lobe of mesonotum distinctly separated, the furrows deep. Abdomen as long as the thorax, ovate; the middle lobe of 1st segment is keeled down the centre and there is a keel on eitherside; the lateral depressions smooth, except for 2 or 3 keels near the apex; sides of 2nd. segment depressed at the base and obliquely striated; suturiform articulation wide, crenulated; the other furrow is less clearly defined especially at the sides; the 4th. and 5th. segments have narrow, shallow furrows on the apex.

The stigma and parastigma are large; the basal abscissa of the cubitus is roundly curved at the base; the recurrent nervure is not interstitial; the sculpture of the abdomen appears to vary in its intensity. Characteristic are the hyaline wings and black hind tibiæ and tarsi.

*Iphiaulax tenuilineatus*, sp. nov.

Luteous, the ocellar region and antennæ black; wings obscure hyaline to the transverse basal nervure, the rest fuscous, the 1st, cubital cellule lighter coloured than the rest, stigma black, yellow at extreme base; the area on 2nd. abdominal segment small, its width at the base, if anything, longer than its length; smooth, the sides rounded; the keel stout, reaching to the base of the apical third; the 3rd, 4th, and 5th. segments roundly projecting at the apex.

Length 11; terebra 6-7 mm.

*Hab.* Kuching.

Scape of antennæ fully 3 times longer than wide covered with golden hair. Face irregularly rugose. Clypeus above rounded. Malar space as long as the antennal scape, furrowed in the centre; temples as long as them, rounded behind, not oblique; occiput transverse; an impressed line on the centre of vertex behind the ocelli. Median segment short. Centre of 1st. abdominal segment rugosely punctured, keeled in the middle; the sides closely striated; the centre of 2nd. segment reticulated, the sides closely striated; suturiform articulation wide closely striated; there is no distinct lateral apical branch, it being only represented by a fovea; there is a distinct irregularly

crenulated furrow on the apex of the 5th. segment ; the apices of the 3rd. and following segments are narrowly pale yellow.

Allied to *I. astiochus* and *I. matangensis* ; may be known by its larger size, longer ovipositor, by the temples being more rounded and not obliquely narrowed, and by the smooth, more clearly defined keel on 2nd. abdominal segment.

*Iphiaulax paternus*, sp. nov.

Luteous, the flagellum of antennæ black ; the wings yellowish to the transverse basal nervure, dark fuscous beyond, the stigma and nervures black, 2nd abscissa of radius distinctly shorter than the 3rd.; basal plate on 2nd. abdominal segment wider than long, roundly narrowed towards the apex which has a narrow keel, not much more than half its length. ♀.

Length 10 ; terebra 5 mm.

*Hab.* Kuching. September.

Scape of antennæ fully 4 times longer than wide. Temples roundly narrowed, not quite as long as the antennal scape. Front deeply furrowed. Face rugose, slightly reticulated. Top of clypeus rounded, it is less strongly rugose than the face. Tips of mandibles broadly black. The centre of middle lobe of 1st. abdominal segment with 2 stout keels ; the sides are also keeled ; the lateral depression wide, irregularly striated ; 2nd. segment longitudinally rugosely punctured ; the part bordering the area irregularly reticulated ; the sides are distinctly depressed on the basal half and closely, strongly, obliquely striated ; suturiform articulation wide, deep, crenulated and without an apical lateral branch ; the apex of the 3rd. segment has an indistinct crenulated furrow, there is a much more distinct one on the base of the 4th.; one on its apex and on the apex of the 5th.

The parapsidal furrows are distinct only on the basal half ; the apical half of the mesonotum is flat ; the basal 4 points of fore tarsi as long, together, as the tibiæ ; there is a distinct hyaline cloud below the base of the 1st. transverse cubital nervure, the 2nd. discoidal cellule is lighter coloured than the upper one.

Allied to *I. annulitarsis*, having a similar plate on the 2nd. abdominal segment, but may be known from it by the much shorter ovipositor, which, in *annulitarsis*, is as long as the body.

*Iphiaulax smenus*, sp. nov.

Dark luteous; antennæ, ocellar region and centre of front the transverse furrows on the abdomen, the base of the 3rd. segment and of the 4th. and 5th. broadly in the centre, black; the wings to the transverse cubital and the transverse basal nervures yellowish-hyaline; the basal half of the stigma yellow; its apical and the parastigma black; the apex of the wings fuscous, tinged with yellow and violaceous; the transverse median nervure received shortly beyond the transverse basal, recurrent nervure interstitial; the 3rd. abscissa of radius nearly as long as the basal 2 united. ♀.

Length 8-9; terebra missing.

*Hab.* Matang, August.

Head smooth; clypeus clearly defined by furrows; temples straight, oblique; occiput transverse. Scutellum not much raised above the mesonotum; its sides and apex with a long, slightly oblique slope, clearly raised and separated and narrowed towards the apex gradually from the base. Raised central part of petiole rugosely punctured, almost reticulated, its middle indistinctly keeled; the depressed sides with some oblique keels. The middle of the 2nd. segment is irregularly reticulated, the basal half clearly separated, raised and bounded by a stout keel and slightly, gradually narrowed to the apex; the basal keel is small, longer than broad, gradually, roundly narrowed to a fine point at the apex and ending in a stout keel which does not reach to the middle of the segment; the space on either side of the keel is smooth; at the sides of the basal plate are some irregular curved striæ; the 3rd. 4th. and 5th. segments are stoutly, irregularly, closely, longitudinally striated, the 3 furrows being also striated; there is a less distinct, more irregularly, striated furrow on the apex of the 5th. segment.

The abdomen is long-ovate and as long as the head and thorax united; the base of the second segment is almost transverse and keeled; its sides at the base are distinctly depressed and irregularly covered with stout striæ. Scape of antennæ stout, about 3 times longer than wide; the 3rd and 4th joints equal in length.

*g. Black, short and broad, basal half of wings black, apical lacteous.* The group of *I. trichiosoma*.

*Iphiaulax pheres*, sp. nov.

Black; antennæ nearly twice the length of the body; the wings dark fuscous to the recurrent nervure and, in front, to the base of the 1st. cubital cellule; the rest milky hyaline; stigma pale ochraceous, darker at the base; the apical nervures lacteous; basal two-thirds of hind wings dark fuscous, the rest clear hyaline. ♀.

Length 8; terebra 2 mm.

*Hab.* Kuching.

Head and thorax smooth and shining; the upper half of orbits with an irregular ochraceous band; the malar space, antennal tubercles and clypeous brownish; mandibles rufo-testaceous, their apex black; palpi black, thickly covered with white pubescence. Front obliquely depressed, furrowed in the centre; ocelli laterally bounded by a deep furrow. Temples wide, not obliquely narrowed, rounded behind; occiput almost transverse. Pronotum with a curved, crenulated furrow before the middle, the part above this being narrowed and separated from the lower. On the centre of the basal half of the metanotum is a keel, bordered by an irregularly foveated furrow, which spreads out obliquely at the apex, the foveæ there being larger and more clearly separated; the apical slope is smooth and shining. Apical abscissa of radius shortly, but distinctly, longer than the basal two united; 2nd. abscissa of cubitus as long as the 3rd.; apical abscissa of cubitus equal in length; recurrent nervure received at the apex of 1st. cubital; transverse basal nervure interstitial. Apical half of 1st. abdominal segment rugosely, coarsely, punctured, the later depressions wide and bearing 2 or 3 irregular keels; 2nd. segment in the centre coarsely, irregularly longitudinally striated-punctured, the sides rugosely, closely punctured and broadly depressed in the middle; thebasal plate smooth and shining, roundly narrowed to the apex; its width at the base more than its length; its keel is stout and reaches to the apex of the segment; the following 3 segments

are opaque, closely rugose ; their furrows distinct, closely striated. Legs covered with short fuscous hair, the fore tibiæ and tarsi with a pale pile.

The abdomen is slightly longer than the head and thorax united ; broad in the middle, narrowed at base and apex, the face is alutaceous ; the face is bordered laterally by a wide furrow ; basal joint of hind tarsi thickened, not quite as long as the following 2 united ; the furrow on the pronotum is continued down the centre of the propleuræ, where it is only crenulated on the top.

Belongs to the group of *I. trichiosoma* Cf. Journ. St. Br. R. A. Soc., 1903, P. 118.

*Iphiaulax veneus*, sp. nov.

Black ; the wings hyaline, the base of both smoky, the stigma and nervures black ; the 3rd. abscissa of the radius distinctly longer than the basal 2 united ; 3rd. abscissa of cubitus shortly, but distinctly, longer than the 2nd.; recurrent nervure clearly separated from the 1st. transverse cubital nervure ; area on 2nd. abdominal segment reaching near to the middle of the segment gradually narrowed to a sharp point ; the base smooth, the rest longitudinally closely striated and with the sides sharply margined ; 1st. abdominal segment smooth and shining in the centre, the sides and apex rugosely punctured ; the depressed edges aciculated outwardly, the apical half deeply depressed. The 2nd., 3rd. and 4th. segments are closely rugosely punctured and irregularly striated ; the striæ on the base of the 2nd. run into reticulations ; on its basal half, mid-way between the middle and outerside, is a striated shallow, longitudinal furrow ; the suturiform articulation deep, closely, strongly striated ; the other 2 furrows are not so clearly defined ; the apical segments are smooth and shining. The abdomen is ovate, as long as the thorax and distinctly wider than it. Legs closely covered with short pubescence ; the hinder more densely than the others ; the basal joint of the hind tarsi thickened, as long as the following 2 united.

Face irregularly aciculated ; clypeus surrounded by furrows, the upper transverse and narrower than the lateral ; 2 short longitudinal keels run into it. Palpi black, covered with white pubescence ; the apical 3 joints of maxillary testaceous ; man-

dibles with the basal half rufo-testaceous. Head and median segment covered with black hair ; the middle lobe of mesonotum is covered with shorter pubescence ; it is clearly separated from the lateral lobes by the parapsidal furrows which are deep, clearly defined and reach close to the apex. The apical slope of the metanotum has a distinct curved furrow on either side, with a few irregular ones between.

The wings in this species are lighter coloured than in the others of the group.

*h. Black ; head, more or less of thorax, and 2 or 4 front legs red ; wings uniformly dark fuscous. The group of I. shelfordi.*

*Iphiaulax mobilis*, sp. nov.

Black ; the head, thorax, fore legs and the greater part of the middle tibiæ red, wings fuscous, the nervures and stigma black ; basal area of 2nd. abdominal segment longer than its width at the base, opaque closely longitudinally striated, with a smooth, shining space, longer than broad and acutely pointed at the apex, the apex of the 1st. the 2nd. and the 3rd. and 4th. abdominal segments, except broadly on the sides at the base, closely longitudinally striated, the suturiform articulation and the furrow on the base of the 4th. segment crenulated.

Length 16 mm. ; terebra 40 mm.

*Hab.* Kuching ; April.

Face closely and distinctly punctured ; the middle of the lower half smooth, the smooth part rounded above ; top of clypeus transverse, the sides oblique, upper half smooth, lower-punctured. Front depressed and smooth in the centre and with a longitudinal furrow ; its sides punctured. Temples oblique, rounded. Antennal scape as long as the 2nd. and 3rd. joint united ; its apex on the lower side slightly produced. Middle lobe of mesonotum clearly separated, the furrows reaching to the apex. Basal depression of 1st. abdominal segment and the base of the apical part broadly in the centre smooth, the middle with a longitudinal keel, with some irregular, mostly transverse keels on either side. The centre of 2nd. segment irregularly reticulated more closely on the inner than on the outer side where the keels

are much longer and not so much intermixed ; the 3rd. and 4th. segments are closely, regularly striated. The apical half of the sheaths of the ovipositor grey.

Comes close to *I. reticulatus* and *I. patrous* ; it differs from both in the central part of 2nd. abdominal segment not being clearly separated and bounded by keels ; the former may further be known by having the keel on the 1st. abdominal segment, much stouter and dilated upwards at the base, the median segment too being black, the latter species is smaller, the abdomen shorter compared with the thorax, the top of the clypeus is rounded, not transverse, and is more distinctly separated from the face ; the lateral bounding keels are stouter in *patrous*, with the top only oblique.

*Iphiaulax reticulatus*, Cam.

This species (described Journ. St. Br. R. A. Soc. 1902, p. 105) has been taken at Mount Siban, and Matang, 3200 feet. At any rate I cannot separate the specimens taken at these places from those collected at Kuching. The species varies in size ; the scape of antennæ may be black or red ; the punctuation on the abdomen varies in intensity, and the apex on the sheath of ovipositor may be black or white. The characteristics of the species are the distinct, large fovea on the apex of the metanotum, the stout keel on the 1st. abdomen segment raised at the base, the distinctly raised and separated middle part of 2nd. segment, this part being bordered by a keel and it becomes narrowed towards the apex ; the longish, rounded temples, slightly roundly incised occiput and long narrow antennal scape.

The ♂ is similar ; the punctuation of the abdomen is coarser throughout ; the antennal scape red and middle femora and tibiæ red. In the ♀ the latter may be more or less reddish.

*Iphiaulax longitarsis*, sp. nov.

Black ; the head, thorax except the greater part of the metanotum, the fore legs and the greater part of the middle femora, red ; the wings fuscous violaceous, the stigma and nervures black ; the basal 2 segments of abdomen longitudinally striated ; the plate on the 2nd. segment smooth, its width the

length of its greatest length ; the apex obliquely narrowed ; its keel reaches to near to the apex of the segment, which is there smooth in the middle ; on either side of it is a smooth plate, broadly rounded on the outer side, narrowed to a point on the inner above ; suturiform articulation crenulated except at the sides ; its posterior lateral branch, wide shallow, obscurely striated ; the enclosed part smooth and shining, broader than long, rounded behind. ♀.

Length 10 ; terebra 10 mm.

*Hab.* Kuching. May.

Scape of antennæ more than twice longer than wide ; the pedicle clearly separated, wider than long. Face flat, smooth ; clypeus not very clearly separated, from it ; broadly rounded above. Temples long, as long as the antennal scape, straight, not obliquely narrowed behind ; occiput transverse. Malar space excavated. First abdominal segment distinctly longer than the second ; its basal depression longer than broad, rounded at the apex ; the striæ irregular, the outer more or less curved. Fore tarsi very long, more than twice the length of the tibiæ. The hair is not very thick on the legs ; the middle coxæ and trochanters fuscous. The abdomen is as long as the length of the head and thorax united. Characteristic of this species are the long front tarsi.

Black ; the head, thorax, antennal scape and fore legs red, the fore legs paler, more yellowish in tint ; wings fuscous, the stigma and nervures black ; face rugose ; 1st. abdominal segment with a stout keel down the middle and with 2 indistinct ones on either sides ; the 2nd. sparsely, irregularly striated ; the basal plate small, longer than broad, obliquely narrowed at the base and apex, its keel stout, reaching to the apex ; suturiform articulation wide, striated, the striæ extending beyond the furrow. Ovipositor densely covered with long black hair. ♀.

Length 8 ; terebra 12 mm.

*Hab.* Kuching. May.

Scape of antennæ somewhat more than twice longer than broad, the 2nd. joint of equal width, longer than broad ; the 3rd. narrowed at the base, slightly longer than the 4th. Sides of

front, distinctly, roundly raised. Temples as long as the antennal scape. Clypeus not clearly separated, rugose. Sides of 2nd. abdominal segment broadly depressed; those of the 3rd. more deeply, especially towards the apex; both depressions are irregularly striated; there is a curved, indistinctly striated furrow on the base of the 4th. segment. The basal 2 joints of the tarsi are fully, together, longer than the tibiæ.

Allied to *I. longitarsis* with which it agrees in having only the basal 2 segments of the abdomen striated; but it may be readily separated by the much longer ovipositor, rugose face and rufous antennal scape.

*Iphiaulax pangæus*, sp. nov.

Black; scape of antennæ, head, pro- and mesothorax, red; wings uniformly dark fuscous, with black stigma and nervures; the 3rd. abscissa of radius as long as the basal 2 joints united; 2nd. abdominal segment without a distinct basal area.

Length 14-15 mm; terebra 11 mm.

*Hab.* Kuching. October.

Scape of antennæ short, not quite twice longer than broad; the 3rd. and 4th. joints about equal in length. Temples distinctly, obliquely narrowed, straight, if anything longer than the basal 2 joints of antennæ, united; the occiput transverse; malar space as long as the scape of antennæ. Parapsidal furrows indistinct. Fore tarsi nearly twice the length of tabiæ, the basal 2 joints being as long as them. The central lobe of 1st. abdominal segment irregularly longitudinally striated and with a stout keel down the centre; the 2nd. segment stoutly irregularly striated, without a distinctly defined area at the base or distinct central keel; the basal half of the sides depressed, but not deeply or clearly; basal half of 3rd. segment closely, finely longitudinally striated; the suturiform articulation closely striated; its posterior lateral branch wide, shallow, not clearly defined; the transverse furrow on the 3rd. segment narrow, striated.

The lower half of the face in the centre is bare, smooth: the rest sparsely punctured and with longish black hair; the inner side of the clypeus has an oblique slope, its top with a row of large punctures; not separated by a furrow from the face.

*Iphiaulax monticola*, sp. nov.

Black, scape of antennæ, thorax, except the sides of the metanotum broadly and the front legs red; the wings dark fuscous, with black nervures and stigma; the basal 3 abdominal segments longitudinally striated; the area on base of 2nd segment closely longitudinally striated, longer than broad, not much narrowed towards the apex; its keel not quite reaching to the apex, bordered by some irregular reticulations, which again are bordered by broadly curved striæ: suturiform articulation crenulated; the furrow on the base of 4th segment is less strongly crenulated. ♀

Length 15 mm.; terebra 13 mm.

*Hab.* Mount Siban. May.

Scape of antennæ about 4 times longer than wide, as long as the 2nd. and 3rd. joints united. Face, except in the centre, sparsely punctured, its centre depressed, the top of the depression with a small tubercle. The middle of clypeus slightly curved downwards; the sides oblique. Temples slightly oblique, rounded behind, somewhat longer than the antennal scape; occiput not quite transverse. Mesonotum flat. Scutellar furrow narrow, smooth. The raised central part of the 1st. abdominal segment is rugosely punctured at the base; the apical part has a furrow down the middle with some irregular, stout striæ on either side; the basal lateral depression of the 2nd. segment has a stout, oblique keel in the centre, bordered at the base by some curved striæ, those on the outer side being stronger than on the inner; on the base of the 3rd. segment is a smooth, triangular space, bordered, except on the outer side, by crenulated furrows; the centre of the segment is depressed and there is a furrow down the centre. Second abscissa of radius shorter than the 3rd. Fore tibiæ longer than the basal 2 joints of the tarsi united.

Comes near to *I. pangæus*, having, like it, only the basal 3 abdominal segments striated; that species may be known by the temples being more oblique, straight, not rounded; the 2nd. abdominal segment is not closely striated in the centre at the base; the middle is not reticulated and all the striæ are longitudinal, those bordering the keel not being curved.

*Iphiaulax quæsitorius*, sp. nov.

Black, the head, pro- and mesothorax and scape of antennæ red; the wings fuscous, almost black, the nervures and stigma black; the basal 3 segments of the abdomen strongly, longitudinally striated, the area on base of the 2nd. segment not clearly defined opaque, closely striated; there is an elongated, triangular smooth plate on either side of it; its inner side with a striated narrow band; there is an obscure pale oblique streak on the lower side of the 1st. cubital cellule and a small clear hyaline spot below the 1st. transverse cubital nervure, on the outer side of the recurrent. ♀.

Length 15; terebra 13 mm.

*Hab.* Kuching. March.

Scape of antennæ fully 3 times longer than wide, longer than the 2nd. and 3rd. joints united; the 3rd. shortly, but distinctly, longer than the 4th. Face sparsely, strongly punctured along the top and sides and sparsely covered with long black hair; the clypeus clearly separated; its top transverse, the side oblique. Malar space twice the length of the 2nd. antennal joint, furrowed in the centre. Temples if anything longer than the antennal scape, not obliquely narrowed, rounded behind; the occiput transverse. Middle lobe of mesonotum not much raised; the furrows indistinct; the apex flat. Median segment covered with longish black hair; the lower part of metapleuræ obscure rufous. The 1st. segment of abdomen longer than the 2nd. broad; its base not much narrower than the apex; the raised central part is longer than broad, its base transverse and clearly separated from the basal depression it is strongly aciculated, irregularly striated in the centre; the depressed outer border smooth, flat and shining. The 2nd. segment has a keel down its centre; the striæ on either side are more curved and irregular; the lateral smooth triangle is bordered on the inner side by a striated furrow; the outer furrow is wide, deep and extends to the base of the apical third; the suturiform articulation deep closely striated, as is also the posterior lateral branch; the enclosed space is smooth and shining; the apical border of the 3rd. segment smooth and shining; there is a distinct crenulated

furrow near the base of the 4th. Legs densely pilose. Fore tarsi about twice the length of the tibiæ, the basal 2 joints together as long as them. Sheaths of ovipositor broad, densely pilose. The sides and ventral surface of 1st. abdominal segment white.

*Iphiaulax trichiothecus*, sp. nov.

Black, the head, thorax, front legs and more or less of the middle legs at the base, red; wings dark fuscous, the nervures and stigma black; the back of the abdomen suffused with brown; tips of sheaths of ovipositor broadly white; they are broad and densely pilose; 2nd. 3rd. and 4th. abdominal segments closely, strongly, longitudinally striated; the area on 2nd segment fully twice longer than its width at the base; it becomes gradually narrowed to a fine point; its base rounded, smooth, irregularly, closely longitudinally striated; there is a smooth plate, broad at the base, narrowed towards the apex on either side of it; its keel is narrow, irregular and reaches to the apex of the segment; the space on either side of it is irregularly reticulated; the sides depressed, closely obliquely striated; suturiform articulation deep, crenulated; the furrow on the 3rd. segment is more irregular and is irregularly striated; there is a smooth, curved furrow on the base of the 4th. segment. ♀.

*Length* 9 mm.; terebra 16 mm.

*Hab.* Kuching. April and May.

The 1st. abdominal segment is longer than the 2nd.; it is smooth, except the apical third in the centre; that is raised, keeled on the sides, the keels extending to the middle of the segment; there is a shorter keel in the centre; and there are a few irregular transverse striæ. Scape of antennæ about 4 times longer than wide, the 3rd. joint slightly longer than the 4th. Face closely, distinctly punctured except in the middle; clypeus punctured, depressed broadly in the middle; Malar space longer than the antennal scape, depressed down the centre. Mandibles rufous black at apex; the palpi of a paler rufous colour. Parapsidal furrows deep, clearly defined. Legs densely pilose; the fore tarsi more than double the length of the tibiæ, their basal 2 joints being equal in length to them. Temples not quite the length of antennal scape rounded and slightly narrowed.

*Iphiaulax abgarus*, sp. nov.

Black ; head, pro- mesothorax, the greater part of middle femora and the front legs ; the metapleuræ, and the scape of antennæ below, red ; wings dark fuscous-violaceous, the nervures and stigma black ; apical half of 1st. abdominal segment finely, the 2nd. more strongly longitudinally striated ; the plate on the base of latter does not reach to the middle ; it is longer than its width at the base, becomes gradually narrowed to a point, the base smooth, the rest closely, finely striated. ♀.

Length 12 ; terebra 12-13 mm

*Hab.* Kuching. May.

Scape of antennæ and pedicle marked with red below ; the scape about twice longer than wide. Face and clypeus smooth and shining, sparsely haired, the clypeus not clearly separated from the face. Temples longer than the antennal scape ; occiput transverse. Parapsidal furrows deep, clearly defined ; the middle lobe of mesonotum not raised. Suturiform articulation wide, strongly striated ; its posterior furrow is curved and striated ; the sides of the 3rd. segment are coarsely aciculated ; there is a narrow, almost smooth furrow, which curves roundly backwards on the 4th. segments ; on the ventral surface are three pairs of large black spots. Legs thickly covered with long hair.

Comes close to *I. syleus* but that may be known from it by the much longer antennal scape, it being three times longer than wide.

*Iphiaulax tristator*, sp. nov.

Black ; the head and thorax red, the metanotum infuscated ; the fore legs red ; the apex of middle femora and base of tibiæ broadly of a darker red ; wings dark fuscous, the nervures and stigma black, scape of antennæ dark rufous below ; the basal five abdominal segments striated. ♀.

Length 12-13 mm.

*Hab.* Kuching.

Scape of antennæ short and thick, not much more than twice longer than wide. Face smooth in the centre, an elongated

fovea in its centre above ; the sides punctured. Clypeus short, obliquely sloped, its top rounded. Temples obliquely narrowed, straight, as long as the antennal scape ; occiput slightly, roundly incised. Parapsidal furrows obsolete. First abdominal segment distinctly longer than the 2nd., its length nearly twice the width at the apex ; the basal half of the centre with a stout central keel ; the sides and apical half stoutly, irregularly reticulated ; the lateral furrows stoutly, irregularly transversely striated ; the 2nd. segment stoutly irregularly reticulated, the striæ in the centre more irregular, broken and widely separated ; there is no basal area, but a distinct keel runs to the apex. The suturiform articulation deep, narrow, crenulated ; the lateral apical branch, wide, striated like the rest of the segment ; there is a distinct crenulated furrow on the base of the 4th. and 5th. segments.

*Iphiaulax pampatensis*, sp. nov.

Black, the pro- and mesothorax dark red ; the front, except in the centre above, the face, clypeus, lower two-thirds of outer orbits, base of mandibles and palpi, yellowish-testaceous ; forelegs fuscous-testaceous, the middle coxæ, trochanters and femora darker yellowish-testaceous ; their tibiæ and tarsi almost black ; wings fuscous, highly iridescent, the stigma testaceous, darker in front ; 3rd. abscissa of radius longer than the basal two united. ♂.

Length 11-12 mm.

*Hab.* Pampat. May.

Scape testaceous below, pilose ; about 3 times longer than thick. Front and vertex smooth and shining, the front not much depressed, the ocelli surrounded by furrows which run into the frontal one. Face closely punctured, covered with long fuscous hair ; clypeus surrounded by a rounded furrow. Eyes large, projecting, broader below than above ; malar space small not much more than the length of the 2nd. antennal joint. Temples as long as the antennal scape, rounded, slightly obliquely narrowed ; occiput transverse. First abdominal segment narrow, longer than the second, aciculated ; the apex roundly convex, very smooth and shining ; the second closely, irregularly

longitudinally striated ; the base roundly narrowed ; there is no area, but the centre at the extreme base is smooth and shining, the apex of the segment being also smooth ; the third segment is similarly formed, the basal half in the centre being roundly raised, the raised part being more rounded and more clearly separated than it is on the 2nd. Suturiform articulation narrow indistinct, striated ; the furrow on the base of the 4th. segment is wider and more distinct, the striation being also stronger ; it is continued down the sides, (but this part is not striated) obliquely at the base, more curved at the apex, to near the apical fourth of the segment. The abdomen is long and narrow, more than twice the length of the thorax, of equal width throughout. Antennæ longer than the body.

*Iphiaulax leptogaster*, sp. nov.

Black ; head, thorax, except the metanotum and the 4 front legs, red ; wings fuscous-violaceous, the nervures and stigma black ; the basal 2 segments of the abdomen twice longer than broad of equal length and longer than any of the others ; the 1st. irregularly rugose ; the area on the 2nd. an equilateral triangle, its base the width of the segment, its apex ending in a keel which reaches to the middle of the segment ; it is stoutly irregularly striated ; from either side of the base a keel runs obliquely to near the apex ; inside it are some broken irregular keels, mostly oblique ; outside it particularly on the base and apex, are some irregular broken keels ; the 3rd. segment bears short stout broken keels to near the apex ; the 4th. and 5th. to shortly beyond the middle, the reticulated part being narrowed and rounded at the apex,

Metanotum and basal segments of abdomen sparsely covered with long blackish hair ; antennæ longer than the body ; the scape about 3 times longer than wide ; temples rounded, not obliquely narrowed ; legs densely pilose ; abdomen narrow, twice the length of the head and thorax united. Parapsidal furrows indistinct. Length 13 mm. ♂.

Characteristic of this species is the long narrow abdomen with the large triangular plate on the base of the 2nd. segment and the irregularly reticulated segments.

*Hab.* Kuching. March.

*i. As in h. but with the apex of the antennæ broadly white.*

*Iphiaulax ornaticornis*, sp. nov.

Head and thorax red; the antennæ, except the scape which is rufous, and the apical 13 joints which are white; abdomen and the 4 hind legs, black; the front legs rufo-testaceous; the middle legs fuscous; wings fuscous, the nervures and stigma black; 1st. abdominal segment with some stout, irregular curved striæ; the area on 2nd segment reaches beyond the middle where its keels unite; its base is irregularly striated; its apical two-thirds are bordered by short, stout, curved keels; outside these closely, stoutly, longitudinally striated to near the apex; the depressed middle of the lateral region smooth for the greater part; suturiform articulation wide, deep and crenulated; 3rd segment closely, longitudinally striated; the middle of the sides smooth; the base stoutly striated; the furrow on the apex is distinct and crenulated; the extreme apex of the segment and the whole of the following smooth, except that there is a crenulated furrow on the 4th. ♀.

Length 11-16 mm.; terebra 24 mm.

*Hab.* Kuching. May.

Scape of antennæ fully 3 times longer than wide narrowed at the base, the apex produced below; 2nd. joint larger than usual; the 3rd. distinctly longer than the 4th. its base dilated Face and clypeus rugosely punctured; malar space small, not much longer than the 2nd antennal joint. Temples as long as antennal scape, occiput transverse. Parapsidal furrows indistinct. Hind legs long and slender; their femora more or less fuscous; the tarsi distinctly longer than the tarsi; middle tarsi longer compared with their tibiæ.

A distinct, well-marked species easily separated by the white apex of antennæ, long slender legs with all the tarsi clearly longer than their tibiæ and short malar space and by the basal 3 abdominal segments being striated. It appears to vary considerably in size.

*Chaolta trituberculata*, sp. nov.

Luteous, antennæ and a curved mark across the ocelli, black; wings fuscous, yellowish-hyaline to near the transverse basal and to the transverse median nervures; 2nd abdominal segment at the base tuberculate in the middle and at the sides; its area reaching to the middle of the segment; closely striated and becoming gradually narrowed to a sharp point. ♀

Length 11-12 mm.; terebra 9 mm.

*Hab.* Kuching. April.

Antennæ shorter than the body; its scape stout, about 3 times longer than broad, not hollowed below; its apex with a hollow, broadly bordered, longer than broad and rounded at the apex. Face irregularly punctured; below the antennæ is a plate, broader than long, with raised edges; a stout keel runs into it from between the antennæ. Temples broad, rounded behind; occiput transverse. Mesonotum, scutellum and metanotum on one level, flat; the parapsidal furrows obsolete; scutellum depressed, becoming roundly narrowed towards the apex. Central area of 1st abdominal segment strongly, closely longitudinally striated; of almost equal width throughout; the lateral depressions finely striated on the inner side; 2nd to 5th segments closely longitudinally striated, the striæ becoming weaker gradually; the 2nd, 3rd and 4th segments with strong oblique depressions on the base at the sides; the 2nd segment outside the furrow is irregularly striated; the striæ more or less curved. The abdomen is distinctly wider than the thorax and is not much longer than it. The 3rd abscissa of the radius is as long as the basal 2 united. The base of the stigma is ochraceous; there is a curved hyaline cloud, dilated above, on the lower side of the 1st cubital cellule and one along the outer side of the recurrent nervure. Legs short and stout; tarsal joints spinose at the apex; calcaria minute. Hypopygium largely projecting; fore tibiæ as long as the basal 2 joints of the tarsi.

The 1st abdominal segment rises sharply, obliquely from the base to the apex, forming a distinct angle with the 2nd; the

black mark on the vertex extends laterally to the eyes and becomes gradually narrowed to the middle behind.

Comes close to *C. lutea*; that species may be known by the immaculate front, longer ovipositor and yellow scape of antennæ

*Chaolta sulcata*, sp. nov.

Length 9; terebra 5-6 mm.

*Hab.* Kuching. July.

This species is very similar to *C. 3-tuberculata* and has, like it, the base of 2nd abdominal segment trituberculated; it is smaller and more slenderly built; has the facial plate smaller, and not raised along the apex; the scutellum is not flat and hollowed and on a level with the mesonotum, but is raised above it and the metanotum, it being slightly, but distinctly, convex; and the mesopleuræ have a distinct longitudinal furrow below; it being wider, deeper at the base, where it borders the mesosternum; the 2nd abdominal segment is smaller compared with the 3rd and the ovipositor is shorter. The furrow running from the metathoracic furrows is wide and deep; the centre of the metanotum is finely closely longitudinally striated; the top and inner side of the 1st cubital cellule are broadly hyaline and there is a small hyaline spot, longer than broad, in front of the upper side of the recurrent nervure; the lateral furrows on the sides of the 2nd, 3rd and 4th segments are distinct; the suturiform articulation is narrower than it is in *3-tuberculata*. The pleuræ, sternum and legs are covered with long white pubescence.

*Chaolta maculifrons*, sp. nov.

Length 9; terebra 8 mm. ♀.

*Hab.* Kuching. April.

Agrees closely with *C. trituberculata*, having, like it, the base of the 2nd abdominal segment trituberculate, but not so strongly; the front is black except in the centre; the black mark extends to the eyes, is continued behind them all over and, in the middle, is triangularly produced half-way on to the vertex; and the metanotum and back of abdomen are marked with black.

Antennæ black; the scape not quite 3 times longer than broad, the apex toothed at the sides below. Face with a clearly defined semicircular depression over the mouth; covered with pale hair. Front and vertex smooth and shining; the temples broad, not much narrowed, rounded behind; the occiput transverse. Frontal plate smooth, longer than the width at the base; the apex rounded; but not broadly, a furrow leads in to it from between the base of the antennæ, in the centre of which is a keel, which reaches close to the apex of the plate, becoming thicker as it does so. Mesonotum, scutellum and metanotum flat, on one level; scutellum roundly narrowed to the apex. Metanotum and mesosternum blackish. Middle lobe of 1st abdominal segment of equal width; stoutly longitudinally striated, the inner side of the sides more finely and closely striated; the 2nd to 4th segments closely rugosely punctured and striated; the keel on the 2nd segment reaches to the base of the apical fourth; it becomes gradually narrowed to a fine point, is closely longitudinally striated and is bordered laterally by a crenulated furrow; the oblique furrows on the 2nd, 3rd and 4th segments are straight, oblique and stoutly striated; the suturiform articulation is crenulated; the 2nd furrow is deep narrow and smooth. Wings yellowish hyaline to near the transverse basal and to the transverse median nervures; the 1st cubital cellule has a hyaline cloud which bifurcates near the middle, the lower branch being the longer, reaching to the apex of the cellule, below which is a smaller cloud projecting backwards from it; the 3rd abscissa of the radius is as long as the basal two united. Fore tarsi twice the length of tibiæ which are hardly the length of the basal two joints united.

# A new species of Chalcis from Borneo.

By P. Cameron.

*Chalcis borneanus*, sp. nov.

Black; the under side of the scape, the apices of the femora, the base and apex of the tibiæ, the tarsi and the tegalæ whitish-yellow; the hinder femora red, their middle teeth longish and clearly separated; the apex of the scutellum ending in 2 stout, longer than broad, teeth; the wings hyaline, the nervures black. ♀

Length 4½ mm.

*Hab.* Borneo.

Antennæ stout, as long as the thorax; the 3rd joint distinctly longer than the 4th and narrowed at the base. Head closely, but not deeply, punctured, except in the centre of the front; the centre of the face shining and less strongly and closely punctured; the top of the clypeus shining and bearing 6 large foveæ. Mandibles rufous behind the teeth. Pro- and mesothorax rather strongly and closely punctured; the pronotum at the base on the sides with a distinct keel. Parapsidal furrows wide, curved. Scutellem more widely punctured than the mesonotum, its apex ending in 2 large, bluntly, rounded, longer than broad, finely rugose teeth. Metanotum irregularly reticulated; the central basal area is larger and longer, is obliquely narrowed at the base and becomes narrowed slightly towards the apex. Propleuræ rugose; the meso- smooth and shining and with some widly separated striæ at the base. Metapleuræ closely reticulated, abdomen shorter than the thorax, blunty pointed and covered with white pubescence at the apex.

# Chinese Names of Streets and Places in Singapore and the Malay Peninsula.

By H. W. Firmstone.

In two previous Journals lists of the Chinese names of streets in Singapore and in Penang have been published by Mr. Haughton and Lo Man Yuk (XXIII and .)

Mr. Firmstone continues and adds to this work the following Chinese names and translations.

I.—Chinese names of

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 1. Albert Street ... | (i) Bo moa$^{n}$-iu koi ... | Mo ma-yau kai ... |
| | (ii) Mang-ku-lu seng-ong-kong. | ... |
| 2. Almeida Street .. | Gu-chhia-chui hi-hng au. | Ngau-chhe-shui hei-yün hau kai. |
| 3. Amoy Street ... | (i) Ma-cho-kiong au ... | ... |
| | ... | (ii) Kun-yam miu hau kai. |
| | (iii) Gi-oh khau ... | ... |
| | | (iv) Ha mun kai ... |
| 4. Angus Street ... | Kam-kong Ma-lak-kah neng-chhun hi-hng tui-bin koi. | ... |

## Streets in Singapore.

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 街油蘇磨 | (i) 'Grind oil of sesamum street': *i.e.* the street where oil is expressed from Sesamum. |
| 公王聖魯人望 | (ii) 'Bencoolen joss': *i.e.* the street of the Bencoolen street district joss. |
| 街後園戲水車牛 | 'Behind the Bullock-cart-water theatre' *i.e.* the street behind the Chinese theatre in Kreta Ayer. (of Smith street and Sago street). |
| 後宮祖媽 | (i) 'Behind the temple of Ma-cho'. |
| 街後廟音觀 | (ii) 'The street behind the temple of Kun-Yam'. (The same temple is used for the worship both of the godddess Ma-cho, and of the goddess Kun-yam.) |
| 口學義 | (iii) 'Free school mouth' *i.e.* in front of the Free school, there being a Chinese School in Amoy street. |
| 街門厦 | (iv) 'Amoy street'. ('Ha-mun' is the Cantonese pronunciation of the characters representing the name of the place Amoy). |
| 春恒呷吹嘛公監<br>街面對園戲 | 'Kampong Malacca chop 'Heng Chhun' theatre opposite street' *i.e.* the street in Kampong Malacca opposite the theatre of chop 'Heng Chhun'.) (Angus street is one of a dozen or more streets in the |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 5. Ann Siang Hill ... | Chui-lan teng ... | Sui-lan theng ... |
| 6. Annamallai Chitty lane. | (i) Tek-kha Khut-thau hang. | (i) Chuk-keuk kwat-thau hong. |
| | (ii) Tek-kha tng-tiam tui-bin te-saⁿ-tiau. | (ii) Chuk-keuk tong-pho tui-min tai-sam-thiu. |
| 7. Anson Road ... | (i) Lau toa-peh-kong hit-tiau. | ... |
| | (ii) Ti ku pa-sat khi Tan-jong Pa-kat hai-kiⁿ hit-tion. | ... |

| Chinese Characters | Remarks as to Meaning. |
|---|---|
| | Kampong Malacca district and no Chinaman would think of giving the name quoted, but would be content with the indefinite expression 'Kam-kong Malak-kah.' The neighbourhood contains but few Cantonese, and they would use 'Kam-pong Ma-lak-kah.' |
| 亭蘭萃 | 'The 'chui-lan' pavilion'. (There used to be a club on this hill, known by this name). |
| 巷頭掘脚竹 | (i) 'The cul-de-sac in 'Tek Kha'.' (Tek Kha' means 'foot of the bamboos' and is the universal name for all the Selegie Road neighbourhood). |
| 三第面對店當脚竹條 | (ii) 'The third (street) opposite the 'Tek-kha' pawnshop.' (There is a pawnshop in Selegie Road, and opposite it three narrow lanes lead off, viz. Veerappa Chetty lane, Nagapa lane, and this one.) |
| 條那公伯老 | (i) 'Old idol street.' (There is an old temple at Tanjong Pagar.) |
| 巴戎丹去虱巴舊自條那墘海葛 | (ii) 'From the old market going to Tanjong Pagar (along) the shore, that street'. These names are such as may be used by Hokkiens. I can find no Cantonese name. Far a great part of the road |

| English. | Hokkien. | Cantonese |
|---|---|---|
| 8. Arab Street ... | (i) Jiau-a koi ... | (ii) Yau-wa kai ... |
| 9. Armenian Street ... | Seng Po toa chhu au... | Seng Po tai ok hau-pin. |
| 10. Bain Court ... | (i) Chui-sien-mng beliau hang-a lai. ... | ... (ii) Shui-sin-mun ma-fong kwat-thau hong. |
| 11. Bain Street ... | (l) Hok-im-kuan au koi. (ii) Sek-a-ni le-pai-tng tui-bin hang. | (i) Fuk-yam-kwan hau-kai. ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | there are no houses and that accounts for the fact that there is no Chinese name as yet crystallised for the road.) |
| 街亞爪<br>街華休 | 'Javanese street.' (Many Javanese live here, and the Chinese have distinguished them as the chief inhabitants of the street.) |
| 後厝大寶成 | 'Behind Seng Po's big house'. (Sing Po, *i.e.* Tan Seng Po, a wealthy Chinaman, is now dead.) |
| 內仔巷寮馬門仙水 | (i) 'Water-fairy-gate stables lane within.' |
| 巷頭掘房馬門仙水 | (ii) 'Water-fairy-gate stables cul-de-sac.' (Bain Court is a lane off North Bridge Road. That part of North Bridge Road is called 'the Water-fairy-gate', why I cannot say, unless it is connected in any way with the fact that there was once a public bath in the vicinity. Douglas' Amoy Dictionary gives 'chui sien mng' 'gangway' but I know of no reason why this part of Singapore should be socalled. |
| 街後舘音福 | (i) 'Street behind the Gospel-house.' |
| 面對堂拜禮年仔色<br>巷 | (ii) 'Eurasian Church opposite lane.' ( (ii) applies also to Holloway Lane). |

| English. | Hokkien. | Cantonese |
|---|---|---|
| 12. Balestier Road ... | (i) O Kio. | ... |
| | ... | (ii) Wu-hap thong ... |
| | (iii) Go-cho toa-peh-keng. | ... |
| 13. Bali Lane ... | (i) Sin Ba-li. | ... |
| | ... | (ii) Ma-li hong. |
| 14. Banda Street ... | ... | Fan-tsai mei. |
| 15. Battery Road ... | (i) Tho-kho au ... | ... |
| | ... | (ii) Dho-fu fa-yün pin. |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 橋烏 | (i) 'Black Bridge.' |
| 塘葉芋 | (ii) 'Taro Pond.'<br>(ii) this name is also given to Delta Road (ii) there are fields planted with this vegetable in the Balestier Road neighbourhood. |
| 公伯大曹鵝 | (iii) 'Rochore Temple.' |
| 厘峇新 | (i) 'New Bali.' |
| 巷厘馬 | (ii) 'Bali Lane.' |
| | (i) New Bali, to distinguish the lane from Shaikh Madaesah Lane or 'Old Bali' adjoining.) |
| 尾寨番 | End of the foreign brothels. ('Foreign' here means 'frequented by non-Chinese.' There is nothing but a roundabout way of expressing this Street in Hokkien; cf. Spring Street.) |
| 後庫土 | (i) 'Behind the godowns.' |
| 邊園花庫七 | (ii) 'Beside the garden (near the) godowns. (There is no definite name. A Chinaman would undoubtedly have to go into further detail to distinguish Battery Road from adjoining Streets). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 16. Beach Lane. ... | Thih pa-sat khut-thau hang. | Thit pa-sat kwat-thau hang. |
| 17. Beach Road. ... | (i) Sio-po hai-kiⁿ. | ... |
| | ... | (ii) Kam-pong hoi-pin. |
| | (iii) Thih pa-sat khau. | (iii) Thit pa-sat hau ... |
| | ... | (iv) Sha-tsui hung-mo thit-chhong tui-min. |
| | (v) Bang heng bi-kau. | (v) Man heng mai-kau. |
| | ... | (vi) Hoi-nam wui-kwun hoi-pin kai. |

| Chinese Characters. | Remarks as to meaning. |
|---|---|
| 巷頭掘氹巴鐵 | 'The iron market cul-de-sac.'<br>(The iron market is the market built of iron, *i.e.* Clyde Terrace Market). |
| 墘海坡小 | (i) 'Small-town sea shore.'<br>('Sio-po' is 'small town' i. e. that part of Singapore to the north of the Stamford Road Canal, as opposed to 'toa-po' or big town, the Singapore river end of the town.) |
| 邊海榜金 | (ii) ''Kampong' sea shore.'<br>(Kampong means Kampong Glam, and is practically the Cantonese equivalent for 'sio-po.') |
| 口氹巴鐵 | (iii) 'Iron market' i. e. the street to which the iron market opens or faces (see Beach Lane). |
| 面對廠鐵毛紅嘴沙 | (iv) 'Tanjong Rhu European foundry opposite.' (This would seem to be a roundabout way of describing Beach Road, and would probably only be used as explanatory of (ii) (but I heard it used). |
| 郊米興萬 | (v) 'Chop 'Ban Heng' rice-mill.' |
| 街邊海館會南海 | (vi) 'The street along the shore near the Hailam kongsi-house. |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (vii) Ji-chap keng ... | (vii) Yi-shap kan. ... |
| 18. Belilios Road. ... | Phau-be po hang ... | Phau-ma po hong .. |
| 19. Bencoolen Street... | (i) Chhai-tng au. | (ii) Chai-thong hau. |
| | (ii) Mang-ku-lu toa lo. ... | (iii) Mong-kwo-lo. |
| 20. Ben Hoon Road ... | Chin-long lai. | Chau-long roi. |

| Chinese Characters. | Remarks as to meaning. |
|---|---|
| 間十二 | (vii) 'Twenty buildings.'<br>(This name is more generally given to Jalan Sultan, but the twenty houses in question were in Beach Road! This is only characteristic.) |
| 巷坡馬跑 | 'Race Course Lane.'<br>(There is no other name for this and half a dozen other streets leading from Serangoon Road towards the Race Course.) |
| 後堂菜<br>後堂齋 | (i) and (ii) Behind the Vegetarians' hall.'<br>(There is a meeting house of a Chinese Vegetarian guild here.) |
| 路大魯久望 | (ii) ''Bencoolen' big street.' |
| 路菓芒 | (iii) 'Bencoolen.'<br>(A number of streets in this neighbourhood are spoken of as 'Bencoolen' by all classes of Chinese. It is usually exceedingly difficult to ascertain which street is meant). |
| 內廊酒 | 'Within the spirit depôt (district).'<br>(There was formerly a factory of Chinese spirit near where this road now lies. It is disused now. Cf. Cheang Hong Lim Lane, where there is also a disused spirit-factory.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 21. Bernam Street .. | Tan-jong pa-kat chin-seng shaⁿ khau. | Tan-yong pa-kat chan-seng shan hau. |
| 22. Bernard Street ... | Go-cho lut bo-bue hang. | Lo-cho lut mo-mei hong. |
| 23. Birch Road. ... | Phau-be po hang ... | Phau-ma po hong ... |
| 24. Blanco Court ... | Gu-long lai ... | ... |
| 25. Boat Quay. ... | (i) Tiam-pang lo-thau | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 口山成振葛巴戎丹 | 'Tanjong Pagar Chin Seng Hill mouth' *i.e.* the road on to which Chin Seng Hill opens (or faces) at Tanjong Pagar. (I do not suppose that this name would help one much to locate the street in speaking to a Chinaman, but there are no names for this or many other of the numerous new streets off Tanjong Pagar Road. However I was given this description as applicable to Bernam Street among others. 'Chin-Seng Hill' is what is usually called 'Bukit Kim Cheng.') |
| 巷尾無律槽鵝 | 'Rochore Road no end lane.' (This is a small blind alley off Rochore Road.) |
| 巷坡馬跑 | 'Race Course Lane.' (See Belilios Road). |
| 內巒牛 | 'Within the godowns (quarter).' ('Gu-lang' is not Chinese, but is simply 'godown' pronounced in Hokkien fashion. I do not know why such a name is specified for such an insignificant street as Blanco Court.) |
| 頭路邦墊 | (i) 'Sampan ghaut or landing-place.' (This applies to the lower part of Boat Quay near Purvis Creek.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Chap-saⁿ kang ... | (ii) Shap-sam hong ... |
| | (iii) Khe-kiⁿ ... | ... |
| | (iv) Chap-peh keng ... | (iv) Shap-pat kan ... |
| | (v) Chui-chhu bue ... | ... |
| 26. Bonham Street. ... | Tuan Kat tho-kho au-bue ... | Tun kat tho-fu hau-mei. |
| 27. Bras Basah Road... | (i) Lau kha-khu-keng khau. | ... |
| | ... | (ii) Kau ka-ku hau ... |
| | (iii) Ho-lan-se le-pai-tng piⁿ ... | (iii) Fat-lan-sai lai-pai-thong pin. |
| | (iv) Hai-kiⁿ ang-neo toa-oh piⁿ ... | ... |
| | ... | (v) Tai shü-kwun-fong pin. |
| 28. Buffalo Road ... | Kam-kong ka-la-bu phau-be po hang ... | Phau-ma po hang ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 十三行 | (ii) 'Thirteen shops,' *i. e.* the part near where Canton Street joins it. |
| 墘溪 | (iii) 'River-side.' |
| 間八十 | (iv) 'Eighteen houses,' *i. e.* the part near Circular Road. |
| 尾厝水 | (v) 'Bathing-house end.' (This name is little used: it belongs to the Canton Street part.) |
| 尾後庫土葛緞 | 'At the back of Mr. Katz' godown' *i. e.* behind Katz Brothers' Shop. |
| 口間拘脚老 | (i) & (ii) 'Old Gaol Mouth.' (The old gaol was between Stamford Road and Bras Basah Road. 'Kha-khu' means 'fetters' in Hokkien. The Cantonese is adapted.) |
| 口古架舊 | |
| 邊堂拜禮西關和 | (iii) 'Beside the French Church.' |
| 邊學大毛紅墘海 | (iv) 'Beside the seaside English big school' (*i. e.* Raffles Institute). |
| 邊旁館書大 | (v) 'Beside the big school.' |
| 埔馬跑武勝加公監巷 | 'Kampong (for Kandang) Kerbau Race-course Lane.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 29. Buggis Street ... | Peh sua-pu ... | ... |
| 30 Bukit Timah Road. | (i) Tek-kha kang-a ki$^{n}$ | ... |
| | ... | (ii) Tek-kha chhung pin. |
| 31. Canal Road ... | (i) Kam-kong Ma-lak-kah kang-a ki$^{n}$. | ... |
| | (ii) Pik-ki-lin au ... | (ii) Pak-khi-lun hau-(pin kai). |
| | (iii) Kong chioh-a ... | ... |
| | (iv) Pun-so chhia ... | ... |
| 32. Cantonment Road.. | Pa-so bue ... | Pa-so mei ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 浮沙白 | 'White-wash' (?)<br>(Sua-pu is said to be the Malay 'sapu;' but no information is forthcoming as to the reason for the name, which I suppose be due to the houses there being once given an extra coat of whitewash). |
| 墘仔港脚竹 | (i) & (ii) 'The side of the stream in the Tek-kha (or Selegie Road) district.' |
| 邊湳脚竹 | (This only refers to the lower end of the Bukit Timah Road. The Wayang Satu and Bukit Timah village parts are differently called; see under the country districts.) |
| 墘仔港甲六馬公監 | (i) 'Beside the Kampong Malacca Stream.<br>(This name is practically obsolete.) |
| 後麟其畢 | (ii) 'The street behind the 'Pickering' (office)' *i. e.* the Chinese Protectorate. |
| 仔石貢 | (iii) 'Stone breaking.'<br>(This is the general name for Havelock Road, but the name is also applied to Canal Road.) |
| 車橘糞 | (iv) 'Refuse sweeping carts.'<br>(Municipal refuse carts are stationed here. |
| 尾梭巴 | 'End of (Bukit) Pasoh.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 33. Canton Street ... | (i) Khai kiⁿ hueⁿ-koi-a. | ... |
| | ... | (ii) Shap-sam hong wang kai-tsai. |
| 34. Carine Street ... | (i) Go-cho lut bo-bue-hang. | ... |
| | ... | (ii) Lo-cho kwat-thau hong. |
| 35. Carpenter Street... | (i) Hi-kuan koi ... | ... |
| | (ii) Gi-hok koi ... | (ii) Yi-fuk kai ... |
| 36. Cashin Street ... | (i) Hok-im-kuan au hueⁿ-hang. | (i) Fuk-yam-kwun hau-pin wang-hong. |
| | (ii) Ka-seng koi ... | ... |
| 37. Cavenagh Road ... | Toa-ong-suaⁿ au koi ... | Tai-wong-shan hau kai. |
| 38. Cecil Road ... | (i) A-phien kongsi ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 仔街橫嶼溪 | (i) & (ii) 'Small cross street by Boat Quay.' |
| 仔街橫行三十 | |
| 巷尾無律槽豬 | (i) & (ii) 'Cul-de-sac near Rochore (Road).'<br>(cf. Bernard Street.) |
| 巷頭掘槽豬 | |
| 街舘戲 | (i) 'Theatre Street.'<br>(The first Tiechiu theatre was in this street.) |
| 街福義 | (ii) ''Gi-hok' Street.'<br>(The old 'Gi-hok' society had a Kongsi-house here: cf. Clarke street.) |
| 巷橫後舘音福 | (i) 'The cross street behind the Gospel-house.' |
| 街興嘉 | (ii) (This is phonetic for 'Cashin.') |
| 街後山王大 | 'The street behind the Governor's hill.'<br>(I do not think there is any fixed name for Cavenagh Road, but this was given to me to indicate it.) |
| 司公片豬 | (i) 'Opium-Kongsi.'<br>(The headquarters of the Opium Farm have |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Si-shü kai ... |
| | (iii) Lau pa-sat ma-ta-chhu au. | ... |
| 39. Cheang Hong Lim Lane. | Kong chioh-a chiu-long lai. | Chau-long noi ... |
| 40. Cheang Hong Lim Street. | Peh keng-a | ... |
| 41. Cheang Lim Hien Street. | Kong chioh-a chiu-long lai. | Chau-long noi ... |
| 42. Cheang Wan Seng Road. | Chiu-long pi[n] ... | Chau-long pin ... |
| 43. Cheng Cheok Street. | Gu-kak hang ... | Ngau-kok hong ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | been in this street for the past 2½ years.) |
| 街書詩 | (ii) Phonetic (Si-shü for Cecil.) |
| 後厝打馬虱吧老 | (iii) 'Behind the Police Station near the old market.' |
| 內廊酒仔石貢 | 'Stone-breaking spirit-depôt within' *i.e.* 'within spirit-depôt (quarter) in the Havelock Road neighbourhood.' (All lower Havelock Road and district is called "Stone-breaking (place)." There is a disused spirit factory in Cheang Chong Lim Lane which leads off Havelock Road. Cf: Beng Hoon Road.) |
| 仔間八 | 'Eight small buildings.' (This is a very short street, so the name is not altogether inappropriate.) |
| 內廊酒仔石貢 | (See under Cheang Hong Lim Lane.) |
| 邊廊酒 | 'Beside the spirit-depôt' (cf. Beng Hoon Road.) |
| 巷角牛 | Ox-horn lane': so called because the street runs in a semicircle, more or less, from Tanjong Pagar Road back |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 44. China Street ... | (i) Kiau-keng khau ... | ... |
| | ... | (ii) Po-tsz-chheung kai |
| | (iii) Gi-hin kong-si ... | ... |
| 45. Chinchew Street... | Tau-hu koi ... | Tau-fu kai ... |
| 46. Chin Hin Street... | (i) Toa-po sim koi-a ... | ... |
| | ... | (ii) Chhiu-chau san kai. |
| | (iii) Sin pa-sat sin koi.. | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | again to Tanjong Pagar Road, forming a cresent or pair of ox-horns. |
| 口間賭 | (i) 'Gambling houses' mouth. *i.e.* the street on to which the gambling houses open. |
| 街場字寶 | (ii) 'Gambling-hall street.' |
| 司公興義 | (iii) 'Gi-Hin Kongsi house.' (There was formerly a Kongsi-house of the old Gi-Hin Society here.) |
| 街腐荳 | 'Bean-curd street.' |
| 仔街新坡大 | (i) 'Big town new little street.' ('Big town' is distinguished from 'small town,' which is across the Stamford Road canal; see under Beach Road. It is necessary to add the 'Big town' here, because there is another 'New Street'—Fraser Street—in 'small town.' |
| 街新州潮 | (ii) 'Tiechiu new street.' (The district is largely inhabited by Tiechius, but the street itself is a Cantonese brothel street.) |
| 街新虱巴新 | (iii) 'New market new street.' ('New market' is the Ellenborough Market close by.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 47. Chin Swee Road... | (i) Kong chioh-a chiu-long lai. | Chau-long noi ... |
| ... | (ii) Chin-sui koi ... | Chan-sui kai ... |
| ... | (iii) Siok- ui suaⁿ teng. | ... |
| 48. Chhoa Lam Street. | Siok-ui suaⁿ teng ... | ... |
| 49. Church Street ... | Go-tai thien kiong ... | Ng-toi thin kong ... |
| 50. Circular Road ... | (i) Chap-saⁿ hang au ... | (i) Shap-sam hong hau. |
| | (ii) Chap-peh keng au. | (ii) Shap-pat kan hau. |
| 51. Clarke Street ... | (i) Gi-hok kong-si au... | ... |
| | | (ii) San yi-fuk kong-si hau-pin ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 內廳酒仔石貢 | (i) (See under Cheang Hong Lim Lane). |
| 街瑞振 | (ii) (This is an adaptation, meaning simply Chin-swee Road—it is not commonly used except by Babas.) |
| 頂山憲淑 | (ii) 'Siok Wee's plantation.' (The land about here belonged to Kiong Siok Wee.) |
| 頂山憲淑 | (See under Chin Swee Road above.) |
| 宮天代五 | 'Heavenly palace of the five generations. ('Thien kiong' Heavenly palace is an abbreviation for 'thien hok kiong' *i.e.* palace of heavenly bliss; there is a temple of this name in this street, in which five josses of different se$^{n}$ or clan-names are enshrined.) |
| 後行三十 | (i) 'Behind the thirteen shops'. |
| 後間八十 | (ii) 'Behind the eighteen buildings'. (Cf. Boat Quay). |
| 後司公福義 | (i) 'Behind the Gi-hok Kongsi (house).' |
| 便後司公福義新 | (ii) 'Behind the New Gi-hok Kongsi (house) Cf. Carpenter street. The new Gi-hok Kongsi house was near here.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 52. Clive Street ... | Kam-kong ka-poh ... | Kam-kong ka-pok ... |
| 53. Club Street ... | (i) Toa-mng lai ... | (i) Tai-mun noi ... |
| | (ii) Chui-lan teng ... | (ii) Sui-lan theng ... |
| 54. Clyde Street ... | Thih pa-sat ma-ta-chhu tui-bin hang. | Thit pa-sat ma-ta-liu bui-min hong. |
| 55. Clyde Terrace ... | Ua$^{n}$-tiam khau ... | Wun-tim hau. |
| 56. Coleman Street ... | (i) Chin-seng chhu-pi$^{n}$. | ... |
| | ... | (ii) Chan-seng tai-ok fong pin. |
| | (iii) Hiok-ni sin chhu... au. | ... |
| 57. Collyer Quay .. | (i) Tho-kho au ... | ... |
| | ... | (ii) Tho-fu hau hoi pin |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 蕳加公監 | 'Kampong Kapor'.<br>(This street is in the Kampong Kapor district and has no definite name. Cf. Dunlop street.) |
| 內門大 | (i) 'Within the big gate'. (This has disappeared). |
| 亭蘭萃 | (ii) 'Chu-lan pavilion' (see under Ann Siang Hill). |
| 面對厝打碼虱巴鐵巷 | 'The lane opposite the Police Station near the iron market.' |
| 口店碗 | 'Crockery-shop mouth,' *i.e.* opposite the mouth of the street where these shops are. |
| 邊厝成振 | (i) 'Beside Chin Seng's house.' |
| 邊旁屋大成振 | (ii) 'Beside Chin Seng's big house.'<br>('Chin Seng' was the chop of the late Tan Kim Cheng, a well known citizen of Singapore.) |
| 後厝新尼勘 | (iii) 'At the back of Tan Hiok Ni's new house.' |
| 後廍土 | (i) 'Behind the godowns.' |
| 邊海後廍土 | (ii) 'Behind the godowns by the seaside.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (iii) Ang-teng lo-thau | ... |
| 58. Commercial Square. | (i) Tho-kho khau ... | ... |
| | ... | (ii) Tho-fu fa-yün pin. |
| | (iii) Hue-bng kak ... | ... |
| 59. Cornwall Street ... | Chiu-long lai ... | Chau-long noi ... |
| 60. Craig Road ... | (i) Gu-chhia-chui kia | ... |
| | (ii) Ka-lek lut ... | ... |
| | ... | (iii) San yiong tai uk pin |
| 61. Crawford Road ... | (i) Go-cho bue ... | (i) Lo-cho mei ... |
| | (ii) Go-cho pa-sat ... | (ii) Lo-cho pa-sat ... |
| 62. Cross Street ... | (i) Kit-ling-a koi ... | ... |
| | ... | (ii) Hoi-san kai ha kai |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 頭路燈紅 | (iii) 'Red lamp landing place' *i.e.* Johnston's pier. |
| 口廍土 | (i) 'Mouth of the godowns.' |
| 邊園花廍土 | (ii) ''Beside the godowns' flower-garden.' |
| | (iii) 'Flower-garden square.' |
| 內廊酒 | (See under Beng Hoon Road.) |
| 崎水車牛 | (i) 'Side of Kreta Ayer.' |
| 律力加 | (ii) Phonetic only. |
| | (iii) 'Beside Sam Yiong's big house.' (This street is largely inhabited by Babas, hence the 'Ka-lek lut.' 'San Yiong' was the chop of the late Tan Kim Tian and it is still used by his descendants; the name is not generally known.) |
| 尾槽鵝 | (i) 'End of Rochore.' |
| 虱巴槽鵝 | (ii) 'Rochore Market.' |
| 街仔靈吉 | (i) 'Kling Street.' (There are a large number of Kling shops in Cross Street). |
| 街下街山海 | (ii) ''Hoi-san' street lower street.' ('Hoi-san' street is Upper Cross street, *q.v.*) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 63. Cumming Street... | Kam-kong ma-lak kah hi-hng koi | Kam-pong ma-lak-kah hei-yün kai |
| 64. D'Almeida Street | (i) Tho-kho le-long-kwan | (i) Tho-fu ham-lang kwun |
| | (ii) Hiap Hoat koi ... | (ii) Hip fat kai ... |
| 65. Damer Road ... | (i) Ong-ke sua$^{n}$-kah be-liau pi$^{n}$ | (i) Wong-ka shan-keuk ma-fong pin |
| | (ii) Ong-ke sua$^{n}$-kha Kong-pan-ge phah chioh | ... |
| 66. Delta Road ... | O kio ... | Wu khiu ... |
| 67. De Souza Street ... | Lam-in-tang tho-kho kak-thau | Lam-yin-thung tho-fu kok-thau |
| 68. Dickson Road ... | Kam-kong ka-poh ... | Kam-pong ka-pok ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 街園戲甲六馬公監 | 'Kampong Malacca theatre street.' (but see Angus Street). |
| 館巖黎庫土 | (i) 'The auction-rooms by the godowns.' |
| 街發協 | (ii) 'Yap Watt street.' (The first name refers to Powell and Crane's auction-rooms, and the second to the chop of a firm which recently occupied premises there). |
| 邊寮馬腳山家王 | (i) 'Beside the stables at the foot of the Government Hill' (*i.e.* Fort Canning). |
| 打衙班公腳山家王石 | (ii) 'At the foot of Fort Canning where the Municipality breaks stones.' (There is a Municipal store-yard close by). |
| 橋烏 | 'The black bridge.' (This name is also given by Hokkiens to part of Balestier Road *q.v.*) |
| 頭角庫土筒烟藍 | 'Blue funnel godown corner.' (Mansfield & Co's godown is the corner of this street.) |
| 蔴加公監 | 'Kampong Kapor.' (cf. Clive Street, Dunlop Street &c.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 69. Dunlop Street ... | Kam-kong ka-poh hue$^{n}$ (or toa) koi | Kam-pong ka-pok wang (or tai) kai |
| 70. Duxton Road ... | (i) Gu-chhia-chui kia... | ... |
| | (ii) Tok-sun lut ... | (ii) Tak-sun lut ... |
| | (iii) Kam-kong-a lai... | ... |
| 71. Ellenborough Street | Sin pa-sat pi$^{n}$ ... | San pa-sat pin ... |
| 72. Enggor Street ... | Chin-seng sua$^{n}$ khau... | Chan-seng shan hau ... |
| 73. Esplanade ... | (i) Toa-kok cheng chhau-po | ... |
| 74. Farquhar Street ... | Go-cho lut bo-bue hang | Lo-cho lut mo-mei hong |
| 75. Fish Court ... | Lo-ma pan-jiang hang | Lo-ma pan-yang hong |

| Chinese Characters | Remarks as to Meaning. |
|---|---|
| 大或街橫蕷加公監街 | 'Kampong Kapor Cross (or big) street.' (This is perhaps is the biggest street in what is known as Kampong Kapor. The Chinese have not yet given names to the streets here.) |
| 崎水車牛 | (i) At the side of Kreta Ayer (cf. Craig Road). |
| 徛順德 | (ii) Phonetic, but commonly used. |
| 內仔公監 | (iii) Within the little 'Kampong.' |
| 邊虱巴新 | 'Beside the New Market' ( Ellenborough Market). |
| 口山成振 | 'Chin-Seng Hill mouth' (see under Bernan Street). |
| | (i) 'Grass field in front of Supreme Court.' |
| 巷尾無徛槽梧 | 'Rochore Road no end lane) or cul-de-sac.' (see under Carnie street). |
| 巷讓班嗎路 | 'Rumah Panjang lane.' ('Rumah Panjong'='long house,' and is practically a house of ill fame: in Singapore it is the name given to a district in the neighbourhood of the junction of Rochore Road with North Bridge Road.) |

| English. | Hokkien. | Cantonese |
|---|---|---|
| 76. Fish Street ... | Sin pa-sat pi$^{n}$ ... | San pa-sat pin ... |
| 77. Fisher Street ... | Kam-kong ma-lak-kak Tan-seng-ong au | Kam-pong ma-lak-kah chhan-sheng-w o n g hau |
| 78. Flint Street ... | Tho-kho bue ... | The-fu mei ... |
| 79. Fraser Street ... | (i) Sio-po sin-koi ... | ... |
| | ... | (ii) Kam-pong san-kai |
| 80. Garden Street ... | (ii) Thih pa-sat gek-lu-ma hang | ... |
| | (ii) Thih pa-sat tui-bin hang | Thit pa-sat tui-min hong |
| 81. George Street ... | (i) Po-le-au sun-hong koi | ... |
| | ... | (ii) Po-li-sz hau-pin kai |
| 82. Gopeng Street ... | Cho-su-kong khau ... | Cho-sz-kung |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 邊亂巴新 | 'Beside the New Market.'<br>(See Ellenborough Street. Fish Street and the latter are one on each side of the Ellenborough Market). |
| 呷吠麻公監<br>後王聖陳 | 'Behind the Tan-seng-ong (temple) in Kampong Malacca.' |
| 尾庫土 | 'End of the godowns.' |
| 街勒坡小 | (ii) 'Small town in New Street.' |
| 街新榜金 | (ii) 'Kampong (Glam) New Street.'<br>(Cf. Chin Hin Street). |
| 巷馬呂玉亂巴鐵 | (i) 'Lane of the 'Gek-lu-ma' idol near the iron market.' |
| 巷面對亂巴鐵 | (ii) 'Lane opposite the iron market.'<br>(The lane runs into Beach Road opposite Clyde Terace Market. |
| 街豐順後黎保 | (i) 'Behind the Central Police Station street of chop 'Sun Hong.'<br>(Commonly spoken of simply as behind the Police Station). |
| 街便後士璃玻 | (ii) 'Behind the Police Station Street.' |
| 口宮師祖 | 'Mouth of the Cho-su-kong temple.'<br>(This name has to do duty for a number of |

| English. | Hokkien. | Cantonese |
|---|---|---|
| 83. Guthrie Lane ... | Kat-ti-li hang-a lai ... | Kat-tei-lei hong-tsai ... |
| 84 Haji Lane ... | (i) Huan-a kam-kong lai | ... |
| | (ii) Jiau-a koi kam-kong lai | ... |
| | ... | (iii) Yau-wa kai hong tsai |
| 85. Havelock Road ... | (i) Kong chioh-a ... | ... |
| | (ii) Hong lim pa-sat ... | ... |
| | (iii) Chiu long lai ... | Chau-long noi ... |
| | ... | (iv) Pak-khi-lin chik kai. |
| 86. High Street ... | (i) Toa-kok Koi ... | (i) Tai-kot kai ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | streets in the Tanjong Pagar district, where as a matter of fact the streets have no fixed names). |
| 葛地利巷仔內 | 'Guthrie Lane.'<br>(This is a new thoroughfare and it is so far only know by its Municipal name). |
| 番仔監公內 | (i) 'Within the Malay Kampong.' |
| 爪亞街監公內 | (ii) 'Within the Arab Street Kampong.' |
| 爪亞街巷仔 | iii) 'Arab Street little lane.'<br>(Haji Lane lies parallel to Arab Street). |
| 貢石仔<br>芳林巴氹 | (i) 'Stone-breaking.'<br>(ii) 'Hong Lim Market.'<br>(This is the name of that part near the Police Station where the late Cheang Hong Lim built a market years ago. Stones for use on the roads used to be broken near the Police Station). |
| 酒廍內 | (iii) 'Within the spirit-depôt (district).'<br>(See under Beng Hoon Road). |
| 北其糞直街 | (iv) 'Pickering strait street,' *i.e.* the street in the same line as the Chinese Protectorate. |
| 咯呖大街 | (i) 'Supreme Court Street.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Sang-che$^{n}$ lo ... | ... |
| 87. Hill Street ... | (i) Ong-ke sua$^{n}$ kha ... | (i) Wong-ka shan keuk |
| | (ii) Tiau-kio thau ... | (ii) Tiu-khiu thau ... |
| 88. Hock Lam Street | Hok-lam koi ... | Fuk-nam kai ... |
| 89. Hokkien Street ... | (i) Tso be-chhia koi ... | ... |
| | (ii) Chhiang-thai koi e chat ... | ... |
| | ... | (iii) Cheung-thai ha kai |
| 90. Halloway Lane ... | (i) Sio-po thih-chhio au koi | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 雙井路 | (ii) 'Two wells road.'<br>(This name is not much used now. Formerly there were two wells at the foot of Fort Canning just where High Street joins Hill Street). |
| 王家山腳 | (i) 'Foot of Government Hill.'<br>(Government Hill in the old days was Fort Canning Hill). |
| 吊橋頭 | (ii) 'End of the suspension bridge.' *i.e.* the bridge connecting Hill Street and New Bridge Road. |
| 福南街 | ''Hok-lam' street.'<br>('Hok-lam' is the chop of Lau Kim Pong who owns many houses in this street). |
| 馬車街 | (i) 'The street where (horse) carriages are made.' |
| 長泰街下節 | (ii) 'Lower portions of 'Chhiang Thai' Street.' |
| 長泰下街 | (iii) ''Chhiang Thai' lower street.'<br>(The street is called the 'lower part of Chhiang Thai street,' because Upper Hokkien Street is 'Chhiang Thai' Street. 'Chhiang Thai' is the style of a well known temple in the street). |
| 小坡鐵廠後街 | (i) 'The street behind the iron foundry in 'small town' (see Beach Road). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Kam-pong ta-thit-chhong hau-pin |
| | (iii) Sek-a-ni la-pai-tng tui-bin hang | ... |
| 91. Hong Kong Street. | Ma-kau koi ... | Ma-kau kai ... |
| 92. Hong Lim Quay... | (i) Kam-kong Ma-lak-kah hai-ki" | (i) Kam-pong ma-lak kah hoi pin |
| | (ii) Kam-kong Ma-lak-kah chha-chun thau | ... |
| 93. Hylam Street ... | (i) Hai-lam koi ... | (i) Hoi-nam kai ... |
| | (ii) Hai-lam hue-kuan au | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 便後廠鐵打榜金 | (ii) 'Behind the iron foundry in Kampong Glam). |
| 面對堂拜禮年仔色巷 | (ii) 'The lane opposite the Portuguese Church' (cf. Bain Street.) |
| 街交馬 | 'Macao Street.'<br>(I cannot explain this name satisfactorily. I am told that the street is known to the Chinese as Macao Street, because many Chinese from Macao lived there. But the Chinese know Macao by the name "O-mun." I do not think therefore that that can be the correct explanation. More probably it is adopted from Malay. Malays call Cantonese "Orang Macao," and this street was the home of many Cantonese women at one time. |
| 嶺海呷吠麻公監 | (i) 'Kampong Malacca seashore.' |
| 頭船柴呷吠麻公監 | (ii) 'Kampong Malacca timber-boat landing-place.' |
| 街南海 | (i) 'Hailam Street.' |
| 館會南海 | (ii) 'Behind the Hailam kongsi house.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 94. Jalan Besar ... | Kam-kong ka-poh thai-tu long | Kam-pong k a - p o k thong-chü fong |
| 95. Jalan Klapa ... | Tio$^{n}$-sian-su pi$^{n}$ ... | Chheung-sin-sz (fong) pin |
| 96. Jalan Kledek ... | (i) Huan-a t h i o n g-cheng tong tiau | ... |
| | ... | (ii) Ma-lai fan tui-min chung-kan ko-thiu |
| 97. Jalan Kubor | (i) Huan-a t h i o n g-cheng be-liau | ... |
| | ... | (ii) Ma-lai fan tui-min ma-fong |
| 98. Jalan Penang | Eng-chhai ti | ... |
| 99. Jalan Pisang | (i) Huan-a t h i o n g-cheng thau-tiau | ... |
| | | (ii) Ma-lai fan tui-min tai-yat thiu |
| 100. Jalan Sultan | Ji-chap-keng | Yi-shap kan |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 廊猪剖薄加公監 | 'The Slaughter-pig depot in Kampong Kapor': referring of course to the Abattoir. |
| 邊師先張 | 'Beside the 'Tio$^{n}$ Sian-Su' temple.' |
| 條前塚仔番 | (i) & (ii) "The Middle Street in front of the Malay Cemetery." |
| 個間中面對墳拉馬條 | (i) & (ii) 'The stable in front of the Malay cemetery.' |
| 寮馬前塚仔番 | |
| 房馬面對墳拉馬 | (i) & (ii) 'The stable in front of the Malay cemetery.' |
| 地菜子 | 'Ground where (a vegetable called) 'eng-chhai' is planted.' |
| 條頭前塚仔番 | (It is a kind of water-vegetable). |
| 條一第面對墳拉馬 | (i) & (ii) 'The first street in front of the Malay cemetery.' |
| 間十二 | 'Twenty buildings.' The 20 houses referred to were those first put up in that part of Beach Road near Jalan Sultan.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 101. Japan Street ... | (i) Ma-cho kiong pi[a] ... | ... |
| | (ii) Tng-lang leng-su-hu hit-tiau | ... |
| | (iii) Tit-loh a-ek Kit-leng bio pi | ... |
| | ... | (iv) Yat-pun kai ... |
| 102. Java Road ... | (i) Peh-thah koi ... | (i) Pak thap kai ... |
| | (ii) Sio-po phah-chioh koi | ... |
| | ... | (iii) Kam-pong ta sheh kai |
| 103. Jeddah Street ... | (i) Sio-po sam-pai-yang teng hang | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 邊宮祖媽 | (i) 'Beside the ma-cho temple.' (cf. Amoy Street). |
| 條那府事領人唐 | (ii) 'The street where the Chinese consul lives.' This name is accurate enough at present but obviously will not be permanent.) |
| 邊廟靈吉逸亞落直 | (iii) 'Beside the Kling temple in Telok Ayer.' |
| 街本日 | (iv) 'Japan Street.' |
| 街塔白 | (i) 'White Pagoda Street.' |
| 街石打坡小 | (ii) & (iii) Stone-breaking street 'small town' or Kampong (Glam).' |
| 街石打榜金 | |
| 巷亭秩拜三坡小 | (i) The lane of the praying pavilion in 'small town.' ('Sam-pai-yang' is the Malay town 'Sembaiang.' The street leads from Beach Road to a mosque. The name illustrates the distinction drawn by Chinese between a Mahomedan place of worship and a temple of their own. (The essence of Mahomedanism is prayer, while Chinese pay more attention to vows and acts of adoration). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Thih pa-sat tui-bin hang | (ii) Thit pa-sat tui-min hong |
| 104. Johore Road ... | Au-be-chhia lo chiong-kun-ia-kiong | Hau-ma-chhe lo cheong-kwan-ye miu |
| 105. Kallang Road ... | (i) Ka-lang kio ... | (i) Ka-lang kiu ... |
| | (ii) Ka-lang lut ... | ... |
| | (iii) Heu-siaⁿ ... | ... |
| | ... | (iv) Mui-hai kuk ... |
| 106. Kampong Java Road | Ang-mo thiong ... | Hung-mo fan |
| 107. Kompong Martin | Hu-liou lai ... | Yü-liu ... |
| 108. Kampong Malayu | Ong-hu hang ... | Wong-fu hong ... |
| 109. Kampong Glam-Beach | Toa-cheⁿ kha ... | Tai cheng keak ... |
| 110. Kengcheow Street | (i) Kam-kong ma-lah-kah. Sam-pa-yang teng au | |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 巷面對虱巴鐵 | (ii) 'Lane opposite the iron market.' (cf. Garden Street). |
| 宮爺軍將路車馬後 | 'The temple of the idol 'Chiong-kun' near Victoria Street.' |
| 橋籠加 | (i) 'Kallang bridge.' |
| 律籠加 | (ii) 'Kallang Road.' |
| 城火 | (iii) 'Fire stronghold.' } *i.e.* Gas-works. |
| 局氣煤 | (iv) 'Coal vapour office.' } |
| 塚毛紅 | 'European Cemetery.' |
| 內寮魚 | 'Within the fishermen's village.' |
| 巷府王 | 'Sultan's house lane.' (The late Sultan Ali owned property in this street). |
| 脚井大 | 'Foot of the big well.' (There used to be an old well in the middle of the road at Sultan Gate). |
| 讓拜三呷吠廍公監後亭 | (i) 'Behind the praying pavilion in Kampong Malacca.' (A praying pavilion is a mosque, see Jeddah Street). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Kam-pong ma-lak-kak lai-thong hau-pin |
| | (iii) Keng-chiau koi ... | ... ... |
| 111. Kerbau Lane ... | Phau-be po hang ... | Phau-ma po hong ... |
| 112. Kerbau Road ... | Phau-be po chhau-chhi | Phau-ma po chho-shi |
| 113. Kerr Street ... | Kam-kong ma-lak-kah pun-so chhia tui-bin koi | Kam-pong ma-lak-kah lap-sap chhe tui-min kai |
| 114. Killiney Road ... | Tang-leng pa-sat tui-bin hang | Tang-leng pa-sat tui-nim hong |
| 115. Kim Seng Road... | Hong hin lo ... | Fung heng lo ... |
| 116. Kinta Road ... | Phau-be po hang ... | Phau-ma po hong ... |
| 117. Kling Street ... | (i) { Sua$^{n}$-a teng ... Sua$^{n}$-kia teng | (i) Shan-tsai teng ... |
| | (ii) Thih thiau ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 堂拜禮呷吹麻榜金面對 | (ii) Behind the Kampong Malacca place of worship.' |
| 街照慶 | (iii) 'Keng cheow street' (so-called after the late Tan Keng Cheow). |
| 巷埔馬跑 | 'Race Course Lane.' |
| 市草埔馬跑 | 'Race Course grass-market.' |
| 車掃糞甲六馬公監街面對 | 'In Kampong Malacca opposite the scavenging carts.' |
| 巷面對虱巴陵東 | 'Lane opposite Tanglin Market.' |
| 路興豐 | 'Hong Hin Road.'<br>('Hong Hin' was the chop of Tan Kim Seng). |
| 巷埔馬跑 | 'Race Course lane.'<br>(cf. Kerbau Lane). |
| 頂仔山 | (i) 'Small hill top.'<br>(There was formerly more of a hill here than now exists. This has been levelled). |
| 杜鐵 | (ii) 'Iron pillars.'<br>(Mr. Haughton says 'Many iron pillars were used in the construction of houses in this street'). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 118. Krian Street ... | Chin-seng sua$^{n}$ khau... | Chan-seng shan hau ... |
| 119. Lavender Street | (i) Go-cho toa kong-si | ... |
| | (ii) Chhai-hng lai .. | ... |
| | ... | (iii) Kwong fuk miu kai |
| 120. Lim Eng Bee Lane | (i) Kong-chioh hi-hng au koi ... | ... |
| | ... | (ii) Pak-khi-lun tui-min hei-yun hau kai ... |
| 121. Little Cross Street | Jiau-a phah-thang koi | Yau-wa ta-thung kai... |
| 122. Lorong Teluk ... | (i) Bih-lang koi ... | ... |
| | ... | (ii) Lo-chham kai ... |
| 123. Macao Street ... | (i) Po-le pi$^{n}$ ... | ... |

| Chinese Characters. | Remarks as to meaning. |
|---|---|
| 口山成振 | 'Mouth of Chin Seng's Hill.' (cf. Bernam Street.) |
| 司公大槽梧 | (i) 'Big Kongsi-house in Rochore.' (This refers to the Kongsi house of an old society, the Thien Ti Huë.') |
| 內園菜 | (ii) 'Within the vegetable gardens.' |
| 街廟福廣 | (iii) ''Kwong Fuk' Temple Street.' |
| 街後園戲石貢 | (i) 'Street behind the thratre near Havelock Road.' |
| 後園戲面對麟麒北街 | (ii) 'Opposite the Chinese Protectorate the street behind the theatre.' (The theatre is the Wayang Street theatre, and the word used for Chinese Protectorate is the Chinese equivalent of the name of Mr. Pickering, the first Protector of Chinese.) |
| 街銅打亞爪<br>街銅打華休 | 'Javanese coppersmith's street.' |
| 篾籠街<br>街籮箩 | } (i) & (ii) 'Bamboo-basket street.' |
| 邊黎保 | (i) & (ii) 'Beside the Police Courts.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Po-li-sy fong pin... |
| | (iii) Kua$^{n}$-chha tiam ... | ... |
| | ... | (iv) Kwun-chhoi pho kai |
| 124. Mackenzie Road... | Tek-kha chui-ti ... | ... |
| 125. Magazine Road... | Tan-seng-ong koi ... | Chhan-sheng-wong kai |
| 126. Malabar Street.. | Hai-lam hue-kuan hang ... | Hoi-nam wui-kwun hong |
| 127. Malacca Street ... | (i) Lau pa-sat khau | (i) Kau pa-sat ... |
| | (ii) Ban-hin koi ... | Man-heng kai ... |
| 128. Malay Street ... | (i) Jit-pun koi ... | ... |
| | ... | (ii) Yat pun chai kai... |
| 129. Manila Street ... | Sek-a-ni koi ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 邊傍士璃玻 | (This name was given when the old court was in existence on the south side of the road). |
| 店材棺 | (iii) & (iv) 'Coffin-shop street.' |
| 街舖材棺 | |
| 池水竹脚 | 'The Selegie-Road-district reservoir.' (see under Annamallai Chitty Lane) |
| 街王聖陳 | 'Tan-Seng-ong temple street.' (There is a temple here to Tan Seng Ong the ancestral deity of the Tans). |
| 巷館會南海 | 'Hailam Kongsi-house lane.' |
| 口虱巴老 | (i) 'Old market (mouth).' (The old market is not now in existence, but the present market at Teluk Ayer is often called the 'old market'). |
| 街興萬 | (ii) 'Chop 'Ban Hin' street.' |
| 街本日 | (i) 'Japanese street.' |
| 街寨本日 | (ii) 'Japanese brothel street.' |
| 街年仔色 | 'Eurasian street.' (Several streets in this neighbourhood are called by this name). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 130. Market Street ... | (i) Tiong koi ... | (i) Chung kai ... |
| | (ii) Lau pa-sat khau ... | ... |
| 131. McCullum Street | Tit lok a-ek bue-tiau koi | ... |
| 132 Merbau Road ... | Kam-kong sai-kong ang-mo phah thih | Kam-pong sai-kong hung-mo thit-chhong |
| 133 Merchant Road ... | (i) Sin koi-a khau ... | (i) San Kai hau ... |
| | (ii) Sin koi-a khau hi-hng koi | ... |
| 134 Middle Road ... | (i) Mang-ku-lu ... | (i) Mong-kwo-lo ... |
| | (ii) Sio-po ang-mo phah thih | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 街中 | (i) 'Central Street.'<br>(This refers to the five divisions of the town by the Hokkiens for the purpose of the Chingay procession: there were five Ko-thau). 股頭 |
| 老巴失口 | (ii) 'Old market mouth.'<br>(cf. Malacca Street). |
| 街條尾逸亞落直 | 'Last street in Teluk Ayer.'<br>(No definite name has yet been given to this street, but some such expression as this is used). |
| 鐵打毛紅貢西公監<br>廠鐵毛紅貢西榜金 | 'European foundry at Kampong Saigon' *i.e.* Howarth Erskine & Co. |
| 口仔街新 | (i) 'New street mouth.'<br>(New street is Chin Hin street and it opens in to Merchant Road). |
| 街園戲口仔街新 | (ii) 'The theatre street at the mouth of the little new street.' |
| 路菓芒 | (i) 'Bencoolen.'<br>(see under Bencoolen Street). |
| 鐵打毛紅坡小 | (ii) 'Small-town European iron foundry'<br>(see Beach Road for 'sio-po' there is no European foundry now). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (iii) Hai-lam hue-kuan pi[a] | (iii) Hoi-nam wui-kwun pin |
| | (iv) Sek-a-ni le-pai-tng pi[a] | (iv) Sai-yeung lai-pai-thong pin. |
| | (v) Mang-ku-lu thih-chhio[a] pi[a] | (v) Mong-kwo-lo thit-chhong pin |
| | (vi) Mang-ku-lu chhia kuan | ... |
| | ... | (vii) Mong-kwo-lo shau-chhe kuk |
| 135 Minto Road ... | Lau-chi hang ... | ... |
| 136 Mohamed Ali Lane | Toa-mang-lai hang-a lai | Tai-mun noi hong-tsai |
| 137 Mosque Street ... | (i) Kit-ling bio pi[a] ... | (i) Kat-leng miu pin ... |
| | (ii) Hai-san choi ang-mo oh-au | ... |
| | ... | (iii) Hoi-shan kai hung-mo shü-kwun hau-pin |
| 138 Muar Road ... | (i) Mua[a] lut ... | ... |
| | (ii) Kit-ling-a le-pai-tng cheng | (ii) Kat-leng lai-p a i-thong min chhin |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 邊館會南海 | (iii) 'Beside the Hailam Kongsi-house.' |
| 邊堂拜禮年仔色 | (iv) 'Beside the Portuguese church.' |
| 邊廠鐵魯久望 | (v) 'Beside the iron-foundry in Bencoolen.' |
| 館車魯久望 | (vi) & (vii) 'Jinrikisha depot in 'Bencoolen." |
| 局車手魯久望 | |
| 巷只栳 | 'Betel-nut lane.' |
| 內仔巷內門大 | 'Lane off Club Street.' |
| 邊廟靈吉 | (i) 'Beside the Kling's temple. |
| 後學毛紅街山海 | (ii) & (iii) 'Behind the Europen school in uppen Cross Street.' |
| 後館書毛紅街山海便 | |
| 甫麻 | (i) 'Muar Road' (phonetic). |
| 前堂拜禮仔靈吉 | (ii) 'In front of the Kling church'. (The 'Kling Church' is the church of 'Our |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 139 Nagapa Lane ... | Tek-kha tug-tiam tui-bin te-ji-tiau | Chuk-keuk tongpho tui-min tai-yi-thu |
| 140 Nankin Street ... | Siong-Pek koi ... | Chhung-phak kai ... |
| 141 Narcis Street ... | Kim-lan bio ... | Kam-lan miu ... |
| 142 Neil Road ... | (i) Gu-chhia-chui Kia | ... |
| | | (ii) Ngau-chhe-shui pin ma-ta-liu chek sheung |
| 143 New Bridge Road. | (i) Sin pa-sat ma-ta-chhu cheng | (i) San pa-sat ma-ta-liu chhin |
| | (ii) Gu-chhia-chui ... | (ii) Ngau-chhe-shui ... |
| | ... | (iii) Yi-ma-lo ... |
| 144 New Market Road | (i) Kam-kong ma-lak-kah sin pa-sat koi | (i) Kam-pong ma-lak-kak san pa-sat kai |
| | (ii) Chhau-chhi ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | Lady of Lourdes', largely attended by Tamil Christians). |
| 街柏松 | 'Second (road) opposite the Selegie Road pawnshop.' |
| 廟關金 | ''Siong Pek' (kongsi) street.' |
| 二第面對店當脚竹條 | 'Golden lily temple.' |
| 崎水車牛 | (i) 'Steep (part of) Kreta Ayer.' |
| 直寮打馬邊水車牛上 | (ii) 'Near Kreta Ayer, straight up past the Police station.' |
| 前厝打馬虱巴新 | (i) 'In front of the New Market police station.' |
| 水車牛 | (ii) 'Kreta Ayer.' |
| 路馬二 | (iii) 'Second horse (carriage) road.' |
| 虱巴新呷吠麻公監街 | (i) 'New market street in Kampong Malacca.' |
| 市草 | (ii) 'Grass-market.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 145 Niven Road ... | Ji-ong suaⁿ-kha ... | Yi-wong shan keuk ... |
| 146 Noordin Lane ... | ... | Lo Lam kai ... |
| 147. North Boat Quay | (i) Kek-sng cheng ... | ... |
| | (ii) Ong-ke suaⁿ kha au | (ii) Wong-ka sh.an-keuk hau-pin |
| | (iii) Chin-heng toa chhu | (iiii) Chan-heng tai ok |
| | (iv) Tiau-kio thau bi-kau | ... |
| 148. North Bridge Road | (i) Chui-sien mng ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | (This only refers to that part of the road which runs up to the People's Park.) |
| 腳山王二 | 'Foot of second Governor's hill.' (Formerly Government Hill was Fort Canning and the Chinese still speak of Fort Canning by that name. The present Government Hill is called 'second Governor hill' to prevent confusion. 'Second Governor' is the idiom in Colonial Secretary.) |
| 街琳羅 | 'Lo Lam's Street.' (I am told that one Lo Lam owns property here, but the Hokkien pronunciation ('Lo-Lim') sounds very like 'Noordin' in disguise.) |
| 前霜格 | (i) 'In front of the ice-factory.' |
| 後腳山家王 | (ii) 'Behind the (road along the) foot of Fort Canning.' |
| 厝大興振 | (iii) 'Chin Heng' big house. ('Chin Heng' is the chop of Seah Liang Seah. This refers to the part lower down the river). |
| 郊米頭橋吊 | (iv) 'Suspension-bridge rice-stores.' |
| 門仙水 | (i) 'Water-fairy gate.' (See under Bain Court). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Sio-po hue-chhia lo | ... |
| | (iii) Lo-ma pano-jiang toa be-chhia lo | ... |
| | ... | (iv) Kam-pong taik ma lo |
| 149. North Canal Road | (i) Kau-a kiª ... | ... |
| | ... | (ii) Tan-pin kai ... |
| 150. Omar Road ... | Kam-kong mak-la-kah Sam-pai-gang teng hang | ... |
| 151. Ophir Road ... | Kit-ling le-pai-tng chengchiang-kun iapiª | ... |
| 152. Orchard Road ... | Tang leng pa-sat koi... | Tang-leng ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 小坡火車路 | (ii) 'Small town tramway.' (See Beach Road.) |
| 羅媽班讓大馬車路 | (iii) "Rumah Panjang' big horse-carriage road.' (cf. Fish Court.) |
| 金榜大馬路 | (iv) 'Kampong (Glam) big horse-(carriage) road.' |
| 墘仔溝 | (i) 'Beside the little drain.' (The drain down the centre of the road-way was filled up some years ago.) |
| 街邊單 | (ii) 'One-side street' (There are houses on one side only cf. Upper Macao Street.) |
| 監公廟吠呷三拜秩亭巷 | 'Kampong Malacca praying-temple lane.' ('Sam pai yang' is the Malay 'Sĕmbaiang' and a praying-temple is a mosque.) |
| 吉靈禮拜堂前將軍邊路 | 'In front of the Kling church beside Johore Road.' (See under Muar Road and Johore Road.) |
| 東陵巴虱街 | 'Tanglin market street.' (As a matter of fact 'Tang leng' is the most one gets from a Chinaman, unless he is pressed). |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 153 Ord Road ... | (i) Ong-ke sua$^{n}$-kha thih-chhio$^{n}$ | ... |
| | ... | (ii) Na-lei thih-chhong |
| 154 Outram Road ... | (i) Si-pai po ... | (i) Si-pai po ... |
| | (ii) Si-kha teng ... | ... |
| 155 Padang Alley ... | Ong-hu khut-than hang | Wong-fu kwat-than hong |
| 156 Pagoda Street ... | (i) Kit-ling-a le-pai au | ... |
| | (ii) Kit-ling bio au ... | ... |
| | ... | (iii) Kat leng miu pin kai |
| 157 Pahang Street ... | Ong-hu hang ... | Wong-fu hong ... |
| 158 Palembang Road.. | Peh thah koi au koi ... | Pak thap kai hau kai... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 王家山脚鐵廠 | ('Iron foundry at foot of Fort Canning.' |
| 那利鐵廠 | (ii) 'Riley (Hargreaves') iron foundry.' ('Na-lei' has to do duty in Cantonese for 'Riley.') |
| 施排埔 | (i) 'Sepoy plain.' (The Sepoy lines and Police Station and parade ground are at one end of Outram Road.) |
| 四脚亭 | (ii) 'Four-footed pavilion.' (There is a pavilion in the Cemetery adjoining this road, known by this name.) |
| 王府掘亞巷 | 'The cul-de-sac (near) the Sultan's house.' (See under Kampong Malayu.) |
| 後堂拜禮仔靈吉 | (i) 'Behind the Kling place of worship.' |
| 後廟靈吉 | (ii) 'Behind the Kling temple.' |
| 街邊廟靈吉 | (iii) 'Street beside the Kling temple.' (The Kling temple is a Mohamedan Kling mosque). |
| 王府巷 | 'Sultan's house lane.' (See under Kampong Malayu). |
| 白塔街後街 | 'The street behind 'White Pagoda' Street.' (See Java Road.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 159 Park Road ... | (i) Chhau-chhi ... | (i) Chho-shi ... |
| | ... | (ii) Chan-chü shan kenk |
| 160 Paterson Road ... | (i) Tang-leng ma-ta-chhu au | ... |
| | ... | (ii) Tang-leng ma-ta-liu hau pin kai |
| 161 Pearl's Hill Road | Chin-chu sua$^{a}$ ... | Chan chü shan ... |
| 162 Pekin Street ... | I-sio$^{a}$ koi ... | Yi-seung kai ... |
| 163 Phillip Street ... | (i) Lau-ia-keng khau ... | ... |
| | ... | (ii) Ma-miu kai ... |
| 164. Prinsep Street ... | Mang-ku-lu sau-lo koi | Mong-kwo-lo so-lokai |
| 165. Pulo Saigon ... | (i) Thai-tu-long khau | ... |
| | ... | (ii) Thong-chü fong ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 市草 | (i) 'Grass-market.' |
| 脚山珠珍 | (ii) 'Foot of Pearl's Hill.' |
| 後厝打馬陵東 | (i) & (ii) 'Behind Tanglin Police Station.' |
| 街便後寮打馬陵登 | |
| 山珍珠 | 'Pearl Hill.' |
| 街箱衣 | 'Clothing-box street.'<br>(There are a large number of box-makers in this street.) |
| 口宮爺老 | (i) 'Mouth of the Idol's Temple.' |
| 街廟孖 | (ii) 'Double temple street.'<br>(Two temples are enclosed in one outer wall.) |
| 街路埽魯久筐 | 'Scavenging street in the Bencoolen district.'<br>(There are Scavengers' carts kept at the corner of Prinsep Street). |
| 口廍猪創 | 'Slaughter-pig-depot mouth,' *i.e.* near the Abattoirs. |
| 房猪屠 | 'Slaughter-pig compartment.'<br>(It would be necessary to add something like Kampong Malacca or Kampong |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 166. Queen Street ... | (i) Sek-a-ni koi ... Sek-kia$^{n}$-ni koi | ... |
| | ... | (ii) Lam sam tai uk kai |
| 167. Raffles Place ... | Tho-kha hue-hng .. | Tho-fu fa-yün (pin)... |
| 168. Ramah Street ... | Toa-mng lai ... | Tai-mun noi chau-tim kak-lei |
| 169. Rangoon Road ... | Na$^{n}$-tau hang ... | ... |
| 170. Raub Street ... | Chin-seng sua$^{n}$ khau ... | Chan-seng shan hau... |
| 171 Read Street ... | Ong-ke sua$^{n}$ kha thih-cheio$^{n}$ pi$^{n}$ | Wong-ka shan keuk thit-chhong pin |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | Saigon to avoid confusion with the Jalan Besar Abattoirs.) |
| 街年仔色 | (i) 'Eurasian (serani) Street.'<br>(Part of Queen Street will be included in 'Mang ku lu' see Bencoolen Street, and part again shares in the names of other streets.) |
| 街屋大三林 | (ii) 'Lim Sam's big house street.' |
| 邊園花庫土 | 'The flower garden by the godowns.'<br>(See Commercial Square.) |
| 內門大<br>離隔店酒內門大 | 'Inside the big gate next to the spirit-shop.'<br>(cf. Club Street: the spirit-shop is the present 'Hotel Trieste.') |
| 巷塔籃 | 'Na$^n$-tau lane.'<br>('Na$^n$-tau' is the name of a plant with prickly leaves which grows here. Douglas' Dictionary says it is the 'pandanus' or 'screwpine.') |
| 口山成振 | 'Mouth of Chin Seng's hill.'<br>(See Bernam Street) |
| 邊廠鐵腳山家王 | 'Beside the iron foundry at the foot of Fort Canning hill.'<br>(The iron foundry is Riley Hargreives & |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 172 River Valley Road | (i) Ong-ke sua$^{n}$ kha ... | (i) Wong-ka shan keuk |
| | (ii) Leng-thau che$^{n}$ ... | ... |
| 173 Roberts Lane ... | Phau-be po hang ... | Phau-ma po heng ... |
| 174 Robinson Road ... | Heng-liong koi ... | Heng-lung kai ... |
| | ... | Lo-man-san kai ... |
| 175 Rochore Canal Road | (i) Mang-ku-lu kang-a ki$^{n}$ | ... |
| | ... | (ii) Mong-kwo-lo chhung-pin |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | Co's Workshop. For the expression translated by 'Fort Canning hill' see Hill Street. |
| 聒山家王 | (i) 'Foot of Fort Canning hill.' (cf. Hill Street.) |
| 井頭龍 | (ii) 'Dragon's head fountain.' (There used to be a fountain at the end or this street with a Dragon's head fof a spout.) |
| 巷坡馬跑 | 'Race Course lane' (see Belilios Road). |
| 街隆興 | '' Heng-long' Street.' (Chop 'Heng-long' belonging to Lok yu, the well-known towkay, is in this street.) |
| 街申民羅 | 'Robinson Street.' ('Lo-man-sen' is 'Robinson,' and the name which has been used to my knowledge, is quite Chinese in sound at any rate. I do not however guarantee the name as being intelligible to the ordinary Cantonese-speaking Chinaman. To interpret 'Robinson' Rord clear to him, would require I feel quite sure, a very long rigmarole.) |
| 墟仔港魯久望<br>邊涌路菓芒 | (i) & (ii) 'Beside the canal in the Bencoolen District.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 176 Rochore Road ... | (i) Go-cho lut ... | (i) Lo-cho kai ... |
| | (ii) Lo-ma pan-jiang ... | ... |
| 177 Sago Lane ... | Ho-ban-ni[a] au koi ... | Ho-man-nin hau-pin kai |
| 178 Sago Street ... | Gu-chhia-chui hi-hng-koi cheng koi | Ngau-chhe-shui hei-yün chhin kai |
| 179 Samban Street ... | A-bit-no hang ... | ... |
| 180 Scott's Road ... | Tang-leng ma-ta-chhu tui-bin | Tang-leng ma-ta-liu tui-min |
| 181 Selegie Road ... | (i) Tek-kha ... | ... |
| | (ii) Tek-kha tit-koi ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 街律槽梧 | (i) This is phonetic, but commonly used. (The character only suits the Hok-kien name, for in Cantonese it is sounded 'ng', 'lut' is simply 'road' from Chinese lips.) |
| 讓班媽羅 | 'Rumah panjang.' (The name is really applicable to a District more than one street; cf. 'Fish Court and North Bridge Road.) |
| 街後年萬賀 | 'The street behind 'Ho-man-nin.' ('Ho-man-nin' is the chop of a well known Chinese singing-hall in Sago Street.) |
| 街前園戲水車牛 | 'The street in front of the theatre (street) in Kreta Ayer.' |
| 巷奴實亞 | 'Habib Nor lane.' (Habib Nor was an Arab, now deceased: the street is so named because a 'Kramat' exists there which is dedicated to him.) |
| 面對厝打馬陵東 | 'Opposite Orchard Road Police Station.' |
| 脚竹 | (i) 'Foot of the bamboos.' |
| 街直脚竹 | (ii) 'Foot of the bamboos, Straight Street.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (iii) Tek-kha tng-tiam hit-tiau | ... |
| 182 Seok Wee Road | Siok-iu sua$^{n}$ teng ... | ... |
| 183 Serangoon Road ... | Au-kang ... | Hau-kong ... |
| 184 Shaikh Madarsah Lane | Ku ba-li ... | Kau-ma-li ... |
| 185 Short Street ... | Tek-kha so-si-tek hang | ... |
| 186 Smith Street ... | (i) Gu chhia chui hi-hng poi | Ngau-chhe-shui hei-yün kai |
| 187 Solomon Street ... | Kam-kong ma-lak-kah bue-tiau koi | ... |
| 188 Sophia Road ... | (i) Ji-ong sua$^{n}$ kha ti tek-kha khi | ... |

| Chinese Characters. | Remarks as to meaning. |
|---|---|
| 條那店當脚竹 | (ii) 'Street of the foot of the bamboos pawnshop.'<br>('Tek Kha' is the name for a large district. There are no bamboos visible now.) |
| 頂山位叔 | 'Seok Wee's plantation.'<br>(See under Chin Swee Road.) |
| 港後 | 'Back creek.' |
| 厘咨舊<br>巷竹施蘇脚竹 | 'Old Bali.'<br>(See under Bali Lane.)<br>'So-si-tek lane in Tek Kha.'<br>('So-si-tek' is 'short' in Chinese guise: and Tek Kha means the Selegie Road district. There is no proper name for this street in Chinese.) |
| 街劇戲水車牛 | 'Theatre street in Kreta Ayer.' |
| 街條尾甲吠麻公監 | 'End street in Kampong Malacca.' |
| 起脚竹自脚山王二 | (i) & (ii) 'Foot of Second Governor's hill going up from 'Tek Kha.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Yi-wong shan-keuk yau chuk-tsai keuk hui |
| 189 South Bridge Road | Gu-chhia chui toa be-chhia lo | (i) Ngau-chhe-shui tai ma-lo |
| | (ii) Chhat-bok koi ... | (ii) chhat-muk kai ... |
| 190 South Canal Road | Po-le au kang-a ki$^{n}$ ... | Po-le hau ... |
| 191 Spring Street ... | ... | Fan-tsai mei ma-ta-liu pin |
| 192 Stamford Road .. | (i) Lau-chui khe$^{n}$ ... | ... |
| | ... | (ii) Pun-kei fau-hai pho |
| 193 Stanley Street ... | i) Ma-cho kiong hi-tai au | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 二王山脚由竹仔脚去 | ('Tek Kha' is the name of the Selegie Road neighbourhood.) |
| 牛車水大馬路 | (i) 'The big horse (carriage) road in Kreta Ayer.' |
| 油木街 | (ii) 'Paint-wood street' i.e. 'Painter's street.' (This refers to the part between the Police Court and the river. |
| 黎保後港仔岸 | 'Behind the Central Police Station beside the canal.' (cf. North Canal Road and Macao Street.) |
| 邊寮打馬尾寮番 | 'End of the foreign brothels beside the Police Station.' (cf. Banda Street.) |
| 流水坑 | 'Flowing-water ditch.' (This appears to refer to the Stamford Road canal, which is notorious for being so often practically stagnant.) |
| 舖鞋番記本 | (ii)' 'Pun Ki' foreign shoe shop' (There is an old established Chinese shoemakers' shop chop 'Pun ki' near the Bishop's House.) |
| 後檯戲宮祖媽 | (i) & (ii) 'Behind the Ma-cho temple theatrical stage.' (cf. Amoy Street.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | ... | (ii) Kun-yam miu hei-thoi hau |
| 194 Sultan Gate ... | (i) Sio-po phah thih koi | (i) Siu-po ta-thit kai... |
| | (ii) Ong hu khau ... | ... |
| 195 Sultan Road ... | Phah-tang koi ... | Ta-thang kai ... |
| 196 Sumbawa Road ... | Hue-long koi ... | Fo-long kai ... |
| 197 Sungei Road ... | Tek-kha ma-ta-chhu tui-bin gu-long pi$^{n}$ koi | Chuk-tsai m a-t a-l i u tui-minngau lan pin kai |
| 198 Syed Alwee Road | (i) Sai-ek a-lui koi thai-tu-long pi$^{n}$ | ... |
| | ... | (ii) Thong-chü-fong pin sai-a-lui kai |
| 199 Synagogue Street | Po-le-au te-ji tiau koi | Po-le-hau tai-yi thiu kai |
| 200 Tampinis Road ... | (i) Kam-kong sai-kong khoi-ki$^{n}$ | Kam-pong sai-kong chhung-pin |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 後檳戲廟音觀 | |
| 街鐵打坡小 | (i) 'Blacksmith's streets in 'small town.'' (For 'Sio-po' see Beach Road). |
| 口府王 | (ii) 'Palace mouth.' (cf Kampong Malayu |
| 街銅打 | Coppersmith's street. |
| 街廊火 | 'Steam mill street.' (So called after the steam rice mill in Beach Road, which is not far off). |
| 牛面對厝打馬脚竹街邊廊 | 'The street beside the cattlepens opposite the Tek kha Police Station.' (Sungei Road starts almost opposite Kandang Kerbau Police station: for 'Tek kha' see Selegie Road). |
| 廊猪剖街雷亞逸西邊 | (i) & (ii) 'Syed Alwee street beside the abattoirs.' |
| 街雷亞西邊房猪屠 | |
| 街條二第後黎保 | 'Second street behind the (Central) Police (Station). |
| 邊溪貢西公監 | (i) 'Beside the creek at Kampong Saigon' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Kam-kong sai-kong phah-thih au | ... |
| 201 Tanglin ... | Toa Tang-leng ... | Tai Tang-leng ... |
| 203 Tanjong Pagar Road | Tan-jiong pa-kat ... | Tan-yong pa-kat .. |
| 203 Tank Road ... | Ong-ke suaⁿ au ... | Wong-ka shan hau ... |
| 204 Tan Quee Lan Street | Kui-lan hang ... | Kwai-lan kai ... |
| 205 Tan Tye Place ... | Ong-ke suaⁿ kha thih-long piⁿ thau | Wong-ha shan k e u k thih-chhong pin |
| 206 Teluk Ayer Street | (i) Guan-sun koi ... | ... |
| | ... | (ii) Tai pak kong miu kai |
| 207 Teluk Blanga ... | (i) Sit-lat mng ... | ... |
| | ... | (ii) Sai-pak mun ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 後鐵打貢西公監 | (ii) 'Behind the iron foundry at Kampong Saigon.'<br>(The iron foundry is Howarth Erskine's.) |
| 陵東大 | 'Big Tanglin.'<br>(There is however no 'little Tanglin' that I am aware of.) |
| 葛巴戎丹 | (Phonetic.) |
| 後山家王 | 'Behind Fort Canning hill.'<br>(cf North Boat Quay (ii)) |
| 巷蘭桂 | 'Kui lan Street.' |
| 頭邊廊鐵脚山家王 | 'Beside the iron foundry at the foot of Fort Canning hill.' |
| 街順源 | (i) ''Guan Sun' street.'<br>('Guan Sun' is the name of one of the five divisions of Hokkiens who take part in the chingay procession once every three years.) |
| 街廟公伯大 | (ii) 'Toa-peh-kong temple street.' |
| 門叻實 | (i) 'Singapore gate.' |
| 門北西 | (ii) 'North-west gate.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 208 Teochew Street ... | (i) Sin koi thau ... | ... |
| | ... | (ii) Chhiu-chau kai ... |
| 209 Thomson Road ... | (i) Ang-kio thau ... | (i) Hung khiu thau ... |
| | (ii) Mi$^{a}$-kua keng ... | ... |
| | (iii) Hai-lam sua$^{n}$ ... | ... |
| | ... | (iv) Pek shan theng ... |
| 210 Tong Watt Road | Kong chioh-a chiu-long thau | ... |
| 211 Tras Street ... | Cho-su kong khau ... | Cho-sz kong ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | (This is apparently what the name means, but it has been suggested to me that 'Sai-pak mun' is simply a Cantonese curruption of sit-lat mng). |
| 頭街新 | (i) 'Head of New Street.'<br>(New Street is Chin Hin street.) |
| 街州潮 | (ii) 'Tiechiu Street.'<br>(The street was at one time largely occupied by Teochew women.) |
| 頭橋紅 | (i) 'Head of the Red Bridge.'<br>(The 'Red bridge is that connecting Thomson Road and Kampong Java Road.) |
| 間乾麵 | (ii) 'Vermicelli buildings.' |
| 山南海 | (iii) 'Hailam hill' *i.e.* 'burying-place.' |
| 亭山碧 | (iv) 'Pek Shan theng (cemetery)'. |
| 頭廊酒仔石貢 | 'Head of the Spirit depot (quarter) in Havelock Road district'.<br>( cf Beng Hoon Road.) |
| 口宮師祖 | 'Mouth of the Cho Su Kong temple.'<br>(cf ) |

| English. | Hokkien. | Cantonese |
|---|---|---|
| 212 Tringganu Street | (i) Gu-chhia-chui hue$^{n}$-koi | ... |
| | ... | (ii) Ngau-chhe-shui hei yün wang kai |
| 213 Upper Chinchew Street | Tau-hu koi ... | Tau-fu kai ... |
| 214 Upper Circular Road | Be-chhia koi ... | Ma-chhe kai ... |
| 215 Upper Cross Street | Hai-san koi ... | Hoi-san kai ... |
| 216 Upper Hokkien Street | Chhiang thai koi ... | Chheung thai hai ... |
| 217 Upper Macao Street | (i) Po-le-pi$^{n}$ ... | ... |
| | ... | (ii) Tan pin kai ... |
| 218 Upper Nankin Street | Siong-pek koi ... | Chhung-phak kai ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 街橫水車牛 | (i) & (ii) 'The cross street or cross theatre street in Kreta ayer.' |
| 街橫園戲水車牛 | (cf Smith Street, Sago Street.) |
| 街腐荳 | 'Bean-curd street.' (See Chinchew street.) |
| 街車馬 | 'Horse-carrage road.' (So called because there are coachbuilders there.) |
| 街山海 | 'Hai-san street.' (So called after the Haisan Kongsi-house which was in the street.) |
| 街泰長 | 'Chhiang Thai street.' (See under Hokkien Street.) |
| 邊黎保 | (i) 'Behind the Police Courts.' ('Po-le' is used either for the present Police Police Courts or in some cases for the site of the old courts where the Central Station stood till it was pulled down a few months ago). |
| 街邊單 | (ii) 'One-side street.' (cf North Canal Road.) |
| 街栢松 | 'Siong-pek street.' (See under Nankin Ltreet.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 219 Veerappa Chitty Lane | Tek-kha tng-tiam tui-bin thau-tiau hang | Chuk-tsai-keuk tong-pho tui-min tai-yat thiu hang |
| 220 Victoria Street ... | (i) Au be-chhia lo ... | ... |
| | ... | (ii) Kam-pong yi ma-lo |
| 221 Wallich Street ... | Tan-jiong pa-ka seng-ong kang pi[a] | ... |
| 222 Waterloo Street | (i) Mang-ku-lu chhai-tng koi | ... |
| | ... | (ii) Kun-yam miu chai-thong |
| 223 Wayang Street ... | (i) Pek-ki-lin tui-bin hi-hng koi | (i) Pak-khei-lun tui-min hei-yün kai |
| | ... | (ii) Thung-chai yi-yün kai |
| 224 Weld Road ... | Kam-kong ka poh ... | Kam-pong ka-pok ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 竹脚當店面對哥係巷 | 'First lane opposite the Selegie Road pawnshop.' (cf Nagapa Lane.) |
| 後馬車路 | (i) 'Back horse-carriage road.' (As distinct from the main street *i.e.* North Bridge Road.) |
| 金榜二馬路 | (ii) 'The second Horse road in Kampong (Glam.) |
| 丹戎巴葛聖王宮邊 | 'Beside the Seng Ong temple in Tanjong Pagar.' |
| 望人魯茶堂街 | (i) 'The street in 'Bencoolen' where the Vegetarians' Hall is. |
| 堂齋廟音觀 | (ii) 'The Vegetarians' Hall near the temple of the goddess 'Kun Yam' or 'Kwan Im.' |
| 北麒麟面對園戲街 | (i) 'Theatre street opposite the Chinese Protectorate.' (cf Canal Road.) |
| 同濟醫院街 | (ii) 'Thang Chai Hospital street.' 'There is a Chinese Hospital in the street.' |
| 薄加公監 | Kampong Kapor.' (see Dunlop Street.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 225 Wilkie Road ... | (i) Ji-ong sua$^{n}$ kha ti tek-kha khi ... | ... (ii) Yi-wong shan keuk yau chuk-tsai keuk hui |
| *Bridges,* | | |
| 1. Cavenagh ... | Hai-Ki$^{n}$ thih tiau-kio | Hoi-pin thit tiu-khiu ... |
| 2. Coleman ... | ... | Yi-ma-lo khiu ... |
| 3. Elgin ... | Thih tiau-kio ... | Thit tiu-khiu ... |
| 4. Kallang ... | Ka-lang kio ... | Ka-lang khiu ... |
| 5. Read ... | Kam-kong ma-lah-kah kio | Kam-pong ma-lak-kak khiu |
| 6. Thompson Road ... | Ang Kio ... | Hung khiu ... |
| *Police Stations.* | | |
| 1. Central ... | It ho mata chhu | Yat ho ma-ta liu ... |
| 2. Kandang Kerbau ... | Tek-kha ma-ta chhu... | Chuk-tsai keuk ma-ta-liu |
| 3. Kreta Ayer ... | Gu-chhia-chui ma-ta-chhu | Ngau-chhe-shui ma-ta-liu |
| 4. Marine ... | Hai-kuan ma-ta chhu | Hoi-kwan ma-ta liu ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 二王山脚自竹脚起 | (i) & (ii) 'Foot of 2nd Governor's hill going up from Selegie Road.' |
| 二王山脚由竹仔脚去 | (See Sophia Road. This is descriptive more than an actual name. There is no name for the street.) |
| 海邊吊鐵橋 | 'Iron suspension bridge by the sea shore.' |
| 二馬路橋 | |
| 吊鐵橋 | 'Iron suspension bridge' |
| 加籠橋 | 'Kallang bridge.' |
| 監公麻吹呷橋 | 'Kampong Malacca bridge.' |
| 紅橋 | 'Red bridge.' |
| 一號馬打厝 | 'No. 1 Police house.' |
| 竹脚馬打厝 | 'Selegie Road District Police house.' |
| 牛車水馬打厝 | 'Water cart Police house.' |
| 海關馬打厝 | 'Sea office Police house.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 5. New Bridge Road... | Sin pa-sat ma-ta chhu | San pak sak ma-ta liu |
| 6. Orchard Road ... | Tang-leng ma-ta chhu | Tang-leng ma-ta liu ... |
| 7. Rochore ... | Go-cho ma-ta chhu ... | Lo-cho ma-ta liu ... |
| 8. Sepoy Lines ... | Si-pai po ma-ta chhu ... | Si-pai-lin ma-ta liu ... |
| *Government buildings and other public offices.* | | |
| Chinese Protectorate | (i) Pek-ki-lin ... | (i) Pak-khei-luu ... |
| | (i ) Tai-jin ge ... | ... |
| | ... | (iii) Phai Kwun ... |
| Colonial Secretary's Office | Ji-ong ge-mng ... | Yi peng-thau nga-mun |
| Court of Requests ... | (i) Tho-gun po-le ... | ... |
| | ... | (ii) Lo-ngau nga-mun... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 厝打馬𠯿巴新 | 'New market Police house.' |
| 厝打馬陵東 | 'Tanglin Police house.' |
| 厝打馬槽梧 | 'Rochore Police house.' |
| 厝打馬埔排施 | 'Sepoy plain (or 'lines') Police house.' |
| 麟麒北 | (i) 'Pickering.'<br>(After Mr. W. A. Pickering, C. M. G., the first Protector of Chinese). |
| 衙人大 | (ii) 'Tai-jin's office.'<br>(Tai-jin, literally 'great man,' is a term of respect for officials, specialised in the Straits for officials of the Chinese Protectorate). |
| 舘牌 | (iii) 'Licence Office.'<br>(This refers mainly to the fact that brothels were licenced under the C. D. O. the name however still survives.) |
| 門衙頭兵二 | 'Second governor's office.' |
| 黎保銀討 | (i) 'Sue for money Court. |
| 門衙銀囉 | (ii) 'Sue for money office.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| Gaol ... | (i) Kha-khu keng ... | ... |
| | ... | (ii) Kam-fong ... |
| General Hospital ... | (i) Ong-ke pe$^{n}$ chhu ... | ... |
| | (ii) Lo-kun chuu ... | ... |
| | ... | (iii) Tai yi-yün ... |
| Government House ... | (i) Toa-ong chhu ... | ... |
| | ... | (ii) Tai peng-thau chü-ka |
| Land Office ... | (i) Ga-lan Kuan ... | ... |
| | ... | (ii) Tei-shui sz ... |
| Lunatic Asylum ... | (i) Siau-lang keng ... | ... |
| | ... | (ii) Tin-fong ... |
| Magistracy ... | Po-le ... | Po-lei-sz ... |
| Marine Office ... | (i) Hai kuan ... | ... |
| | ... | (ii) Shun cheng theng |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 間拘脚 | (i) 'Ankle-fetters building.' |
| 房監 | (ii) 'Prison-room.' |
| 厝病家王 | (i) 'Government sick house.' |
| 厝君老 | (ii) 'Doctor's house.' |
| 院醫大 | (iii) 'Great medical hall.' |
| 厝王大 | (i) 'Governor's house.' |
| 家住[illegible]兵大 | (ii) 'Governor's private house.' |
| 舘[illegible]呀 | (i) 'Grant Office.' |
| 司稅地 | (ii) 'Land tax Official.' |
| 間人狂 | (i) 'Mad person's buildings.' |
| 房癲 | (ii) 'Mad room.' |
| 黎保 | 'Police (Court).'<br>(It is said that this name was originally given to the Central Station, which formerly stood where the Court now stands.) |
| 關海 | (i) 'Sea office.' |
| [illegible]政舵 | (ii) Ship management hall'. |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| Municipal Office ... | Kang-po-kek ... | Kung-po-kuk ... |
| Police Office ... | Toa-kau-thau-e ge-mng | Tai kang-thau nga-mun |
| Post Office ... | (i) Phue kuan ... | ... |
| | ... | (ii) Tai shü-sun kwun |
| Singapore Railway Station | Hue-chhia thau ... | Fo-chhe thau ... |
| Supreme Court ... | Toa kok ... | Tai kot ... |
| Tan Tok Seng's Hospital | (i) Nam-seng hue-hng pi" | ... |
| | ii) Thia"-kha keng ... | ... |
| | ... | (iii) Lan-keuk kwun ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 局部工 | 'Board of works' office.' |
| 大狗頭之衙門 | 'Chief big dog's office or Chief Inspector's office.'<br>(Police officers are apparently all 'dogs', for all those above the rank of Sergeant are called 'big dogs': the Cantonese use another idiom: 'foreman', the same word as is used in speaking of an overseer or mandore.) |
| 館批 | (i) 'Letteroffice.' |
| 館信書大 | (ii) 'Big letter-office.' |
| 爭車火 | 'Fire-carriage head.' |
| 咯大 | 'Big Court.'<br>('Kok' or 'Kot' is not Chinese, but an imitation of 'Court'.) |
| 邊園花生南 | (i) 'Beside Nam Seng flower garden.'<br>(Nam Seng was the chop of the Chinaman known to Europeans in Singapore as as Whampoa, *i.e.* Mr. Ho ah Kee C. M. G., former owner of the property known as Bendemeer on Serangoon Road.) |
| 間脚痛 | (ii) 'Sore feet (or legs) building.' |
| 館脚爛 | (iii) 'Broken leg office'. |

## II Chinese names of country districts

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 1. Alexandra Road ... | (i) Chui-bo lai ... | ... |
| | (ii) Lau-chi kha ... | ... |
| | (iii) Sang khau tia[a] ... | ... |
| 2. Balestier Road ... | (i)Go-cho toa-peh-kong | ... |
| | (ii) O-kio ... | ... |
| | ... | (iii) Wu-hap thong ... |
| 3. The Barracks (Tang-lin) | Tang-leng peng-pang | Tung-leng peng-fong |
| 4. Bedoh ... | But-lok ... | ... |
| 5. Blakang Mati ... | Gia-kang ma-ti ... | ... |
| 6. Botanical Gardens... | (i) Ang-mo hue-hng ... | ... |
| | ... | (ii) Wong-ka fa-yün... |
| 7. Bukit Timah ... | Be-chhia lo-bue ... | ... |
| 8. Chancery Lane ... | Sang-chiau ... | ... |

in Singapore Island, and the Vicinity.

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 內磨水 | 'Within the water (rice) mill.' |
| 脚子嗎 | 'Foot of the sirih' i.e. 'near the Sirih gardens.' |
| 鼎口雙 | 'Two boiling pans'—the 'tia" ' is the pan used for boiling gambier—the planters in the Alexandra Road district used two pans instead of one. I suppose there was some difference in the preparation of the gambier. |
| 公伯大槽鵲 | 'Rochore Temple.' |
| 橋烏 | 'Black Bridge.' |
| 塘葉芋 | 'Taro pond.' |
| 房兵陵東 | 'Tanglin Soldier's rooms.' |
| 洛勿 | |
| 池子老意 | |
| 園花毛紅 | (i) 'European flower-garden.' |
| 園花家王 | (ii) 'Government flower-garden.' |
| 尾路車馬 | 'End of the horse-carriage road.' |
| 雀雙 | 'Two birds,' referring to the eagles on the gateway of the drive leading to |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 9. Changi ... | Chiang-gi ... | ... |
| 10. Chua Chu kang ... | (i) Chua-chu kang ... | ... |
| | (ii) Kang-kia$^{a}$ ... | ... |
| 11. Fort Canning Hill | Ong-ke sua$^{a}$ ... | Wong-ka shan ... |
| 12. Government Hill | (i) Toa-ong sua$^{a}$ ... | ... |
| | ... | (ii) Peng-thau shan ... |
| 13. Holland Road ... | Hue-hng au ... | ... |
| 14. Jurong ... | Yu-long ... | ... |
| 15. Kampong Bharu... | (i) Sin kam-kong ... | San kam-pong ... |
| | (ii) Sin sua$^{n}$ ... | ... |
| 16. Keppel Harbour ... | Sit-lat mng ... | Shek-lat mun ... |
| | ... | Chha-tin ma-thau ... |
| 17. Kranji ... | Ka-lan-ji ... | ... |
| 18. Mandi ... | Man-li ... | ... |
| 19. Morai ... | Meng-sun kang ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| | Mohamed Alsagoff's house at the Thomson Road end of Chancery Lane. |
| 宜章 | |
| 港厝蔡 | 'Chua-chu creek' |
| 仔港 | 'Little creek.' |
| 山家王 | 'Government Hill,' as it formerly was. |
| 山王大 | (i) & (ii) 'Governor's Hill.' |
| 山頭兵 | |
| 後園花 | 'Behind the flower-garden.' |
| 鄘油 | |
| 公監新 | (i) 'New Kampong.' |
| 山新 | (ii) 'New hill or plantation.' |
| 門吻寔 | 'Singapore gate.' |
| 頭碼甸渣 | 'Jardine's wharf' *i.e.* the Borneo wharf.' |
| 宜蘭加 | |
| 唎萬 | |
| 港順明 | 'Meng-sun creek.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 20. Pandan Besar ... | Toa pan lan ... | Tai pan-lan ... |
| 21. Pandan kechil ... | Sio pan lan ... | Siu pan-lan ... |
| 22. Pasir Panjang ... | Hong-heng sua[n] ... | ... |
| 23. Ponggol ... | Phong-hut ... | ... |
| 24. Pulau Brani ... | ... | San chü-shek tui-min<br>Chha-tin ma-thau tui-min |
| 25. Pulau Obin ... | Chioh-sua[n] ... | ... |
| 26. Pulau Tekong ... | Ti-kong ... | ... |
| 27. Selitar ... | Chan-chu kang ... | ... |
| 28. Serangoon ... | Au-kang ... | ... |
| 29. Serimbun ... | Bu-kho kang ... | ... |
| 30. Siglap ... | Gi-lap ... | ... |
| 31. Tanjong Gol ... | Tanjong gu-thau ... | ... |
| 32. Tanjong Katong... | Ka-tong ... | ... |
| 33. Tanjong Rhu ... | (i) Tan-jiong gu ... | ... |
| | ... | (ii) Sha-tsui ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 蘭班大 | |
| 蘭班小 | |
| 山興豐 | 'Hong Heng's plantation.' |
| 佛帮 | |
| 面對錫煮新 | 'Opposite the new tin smelting.' |
| 面對頭碼甸渣 | 'Opposite Jardine's jetty.' |
| 山石 | 'Stone hill.' |
| 公地 | |
| 港厝曾 | 'Chan-chu creek.' |
| 港後 | 'Back creek.' |
| 港可武 | 'Bu-kho creek.' |
| 凹義 | |
| 頭牛戎丹 | |
| 冬加 | |
| 牛戎丹 | |
| 嘴沙 | (ii) 'Sand spit.' |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 34. Teluk Blanga ... | Sit-lat mng ... | Sai pak mun ... |
| 35. Thomson Road Reservoir ... | (i) Chui-tham thau ... | ... |
| | ... | (ii) Tai shui thong ... |
| 36. Tiong Bharu ... | O-chhai hng ... | ... |
| 37. Ulu Pandan ... | Sang-leng ... | ... |
| 38. Wayang Satu ... | Toa pa-io ... | ... |

## III. Chinese names of Streets and

| | | |
|---|---|---|
| 1. Bandar Hilir ... | Ban-i-bit ... | Yi-bit ... |
| 2. Bandar Kaba ... | (i) Ban-la ka-ba ... | ... |
| | ... | (ii) Khau-chheung kai |
| 3. Blacksmith Street | Kap-pan koi ... | Kap-pan kai ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 門北西 | cf. 'Keppel Harbour':—Sai-pak mun means 'north-west gate.' |
| 頭冰水 | (i) 'Water pond head.' |
| 塘水大 | (ii) 'Big water lake.' |
| 園菜芋 | 'Taro vegetable garden.' |
| 嶺雙 | 'Two hills.' |
| 窰吧大 | 'Big swamp.' Pa-io is the Malay word 'paya' swamp. |
| **Districts in Malacca town.** | |
| 萬怡蜜 | |
| 萬遮加峇 | |
| 球場街 | ii) "Khau" means 'ball' and "chhaung" means 'area' or 'open space' and the name is given because the cricket-ground adjoins the street. |
| 甲板街 | It is not clear why the name "Kap-pan street" should be given unless "Kap-pan-kai" is a corruption of or substitute for "Kap-ma kai" which would mean "box street." There are a number of box-makers' shops in the street. |

| English. | Hokkien. | Canotnese. |
|---|---|---|
| 4. Bukit China ... | Sam-po chi[a] ... | Sam-pau cheng ... |
| 5. Bunga Raya ... | Bong-ga la-ia ... | Mong-nga la-ye ... |
| 6. 1st Cross Street ... | (i) Kit-ling-a koi ... | (i) Kat-leng kai ... |
| | ... | (ii) Pat-chi-lan ... |
| | (iii) Poh-bian ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 三寶井 | 'Sampo's wells.'<br>(There are wells at the foot of Bukit China and the name of "Sampo's well" is is given to them, because there is a legend, in which the Chinese believe, that a Eunuch of the Ming Dynasty visited Malacca and dug these wells. Similarly the old Fort is called "Sam-po-kong Sia", 'the fort of Sam-po,' and there are various other names locally connected with the legend of Sam-po's visit.) |
| 望雅嘮卬<br>吉寧仔街 | (i) 'Kling Street.'<br>(The chetties and Kling cloth-shop-keepers live at the northern end of the street.) |
| 八斜蘭 | (ii) 'Eight mansions.'<br>(Chi-lan is the name of a flower and 'chi-lan chi shat' means according to Eitel "mansion of brightness and virtue," apparently a complimentary expression. The reason why this name was given is lost in obscurity. |
| 泊洏 | (iii) This name is given to the part near near the landing-place. It is the Malay 'pabeyan' or 'pebiyan' a 'customs-house' or 'wharf' (see Wilkinson's Malay Dictionary.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 7. 2nd Cross Street ... | (i) Ku pa-sat ... | (i) Kau pa-sat ... |
| | (ii) Kiau-keng khau ... | ... |
| 8. 3rd Cross Street ... | Hai san kongsi koi ... | Hai san kong sz kai ... |
| 9. 4th Cross Street ... | Chui-sien mng ... | Shui-sin mun ... |
| 10. Goldsmith Street | (i) Kam-kong ke-tek ... | ... |
| | (ii) Kuan-im-teng koi | (ii) Kun-yam teng kai |
| 11. Heeren Street ... | (i) Ho lan koi .. | Ho-lan kai ... |
| | (ii) Po siah koi ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 舊巴剎 | (i) 'Old market.' |
| 賭間口 | (ii) 'Gambling-house mouth.' |
| 海山公司街 | 'The Haisan kongsi street.'<br>(The kongsi house of this society once stood in this street ) |
| 水仙門 | 'Water-fairy gate.'<br>(So called, it is said, because there was once a public bathing place here: cf. north Bridge Road, Singapore. One can only grope at the reason why a public bathing place should be called a "water-fairy gate." It is a delightful name anyhow.) |
| 甘光家德 | (i) 'Kampong Ketek.'<br>(This is the Malay name.) |
| 觀音亭街 | (ii) 'Street of the goddess Kuan-im's temple.'<br>(This is the common Chinese name for the street derived from the large temple in the street.) |
| 荷蘭街 | (i) 'Dutch street.'<br>(There were Dutch residences here in the old days.) |
| 寶錫街 | (ii) 'Precious metal street.'<br>(This name is not common and I cannot explain the meaning.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 12. Java Lane ... | (i) Ma-kau koi ... | ... |
| | (ii) Sin koi ... | (ii) San kai ... |
| 13. Jonker Street ... | Koi tio" koi ... | Kai chuen kai ... |
| 14. Kampong Pantai... | Kam-kong pan-tai ... | Pan-tai ... |
| 15. Klebang Besar ... | Kit-lai-bong but sat ... | Sai kat-leng-wang ... |
| 16. Klebang Kechil ... | Kit-lai-bong kit-chik | Tai kat-leng-wang ... |
| 17. Kubu Road ... | Ku-bu kak ... | Ku-wu kai ... |
| 18. Mill Road ... | (i) Si-pai po ... | ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 馬交街 | (i) 'Ma-kau street.'<br>(So called because the Cantonese prostitutes live in the street; cf. Hongkong street, Singapore.) |
| 新街 | (ii) 'New Street.'<br>(It is a remarkable coincidence that Campbell street, Penang, Fraser street, Singapore and Java lane, Malacca,—all streets connected largely with houses of ill fame—are all known to Chinese as 'new street.') |
| 圭場街 | (i) 'Cock-pit street.'<br>(So called because a cockpit 'glangang' used to exist here.) |
| 甘光班底 | 'Kampong Pantei,' *i.e.*, the village on the shore. (The Chinese have simply adopted the local name. The name is also applied to the adjoining ends of 2nd and 4th Cross streets.) |
| 吉黎夢勿殺 | (The Hokkiens use transliterations of the Malay name, but the Cantonese translate into 'Big' and 'Little' Klebang. |
| 吉黎夢吉疾 | |
| 龜務角 | 'Kubu corner.' 'Kubu street.' |
| 四牌埔 | (i) 'Sepoys' plain.'<br>(The sepoys' barracks were formerly in this street.) |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| | (ii) Sin pa-sat ... | (ii) San pa-sat ... |
| | (iii) Sa-kak po ... | ... |
| 19. Riverside ... | (i) Ho-lan chhiu kha ... | ... |
| | ... | (ii) Tai-chung kai ... |
| | (iii) Pa-sat khau ... | ... |
| | (iv) Sin koi au ... | (iv) San kai hau pin ... |
| 20. Trangkerah ... | Tang koi lak ... | Tong kai la ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 新巴虱 | (ii) 'New market.' (The new Municipal market is close by.) |
| 三角埔 | (iii) 'Three-cornered plain.' (There is a triangular bit of land here used as a vehicle-stand) |
| 荷蘭樹脚 | (i) 'Foot of the Dutch trees.' (The Dutch trees are the 'sena' trees which were probably introduced by Dutch.) |
| 大鐘街 | (ii) 'Big bell street.' (This refers to the clock tower.) |
| 巴虱口 | (iii) 'Market-mouth.' (Riverside is a long street and has various names in various parts. This name is given to that part near the fish-market.) |
| 新街後 | (iv) 'Behind Java Lane.' |
| 東街蚋 | |

## IV. List of towns and villages in Negri Sembilan.

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| *District of Seremban.* | | | |
| 1. Ampangan ... | Tan-yung ... | 旦容 | |
| 2. Batang Benar | Pa-tang man-long | 吧燈文浪 | |
| 3. Batang Labu | Ma-tang la-wu | 媽燈喳烏 | |
| 4. Binjei ... | Min-ye ... | 綿爺 | |
| 5. Broga ... | Wu-leng-ngan ... | 湖靈眼 | |
| 6. Bukit Putus... | Bu-kit Phu-tok | 武吉浮禿 | |
| 7. Bukit Tangga | Bu-kit tang-nga | 武吉東雅 | |
| 8. Bukit Jelotong | Bu-kit yü-lo-tong | 武吉魚羅東 | |
| 9. Chedang ... | Chin-tang ... | 珍燈 | |
| 10. Gadut ... | Kwa-tu ... | 瓜都 | |
| 11. Gebok ... | Ngai-mok ... | 蟻莫 | |
| 12. Gedang Lalang | Su-mau piang ... | 蘇茅坪 | |
| 13. Klambu ... | Ka-lam-bu ... | 架林武 | |
| 14. Kuala Sawah | Kwa-la sa-wa ... | 甲喳沙華 | |
| 15. Kuala Parit | Kwa 'a ma ngit | 甲喳馬熱 | |

| English. | Chine e. | Characters. | Remarks. |
|---|---|---|---|
| 16. Lenggeng ... | Song-po ... | 宋波 | |
| 17. List ... | Fo-che thau ... | 火車頭 | |
| 18. Limbok ... | Lian-mok ... | 連莫 | |
| 19. Linsum ... | Leng-sam ... | 羚森 | |
| 20. Lobak ... | Lo-mak ... | 羅脉 | |
| 21. Mantin ... | San sa-tu ... | 新沙都 | |
| 22. Membah .. | Man-ma ... | 萬咨 | |
| 23. Merabah ... | Mit-ya-ma ... | 物也咨 | |
| 24. Nendol ... | Mit-tu ... | 蜜都 | |
| 25. Pantai ... | Pan-tei ... | 板低 | |
| 26. Paroi ... | Pa-mi ... | 傌尾 | |
| 27. Pengkalan Kempas | Leng-gi kong-hau | 鄰宜港口 | |
| 28. Perhentian Tinggi | Ship-thiu shak... | 十條石 | |
| 29. Permatang Pasir | Pa-ma-tang pa-sia | 巴嗎燈巴賒 | |
| 30. Rahang ... | Thin-khau mi ... | 田溝尾 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| 31. Rantau ... | An-tau ... | 晏斗 | |
| 32. Rasak ... | Ah-sa ... | 亞沙 | |
| 33. Senaweng ... | Lok thiu shak ... | 六條石 | |
| 34. Seremban ... | (i) Sai-lam-ban | 西林閩 | |
| ... | (ii) Fu-yong ... | 芙蓉 | |
| 35. Setul ... | Lo-sa-tu ... | 老沙都 | |
| 36. Sikamat ... | Sio kam-mit ... | 小甘蜜 | |
| 37. Siliau ... | Sai-liau ... | 西料 | |
| 38. Sungei Pajam | Kong sang san-kai-cheong ... | 廣生新街塲 | |
| 39. Sungei Raia | Sin-kai la-ya ... | 新街喳也 | |
| 40. Tampin Ling-gi | Tam-pin leng-gi | 淡邊鄰宜 | |
| 41. Tanjong Ipoh | Tan-yong I-po ... | 丹蓉億波 | |
| 42. Temiang ... | Cham-yong-thau | 沉香肚 | |
| 43. Terachi ... | Ti-la-chi ... | 地喳知 | |
| 44. Ulu Bernang | Bu-lau ... | 武盧 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| *District of Kwala Pilah.* | | | |
| 1. Batang Jelai... | Pa-tang ya-nai | 巴登也乃 | |
| 2. Batu Bersawa | Pa-tu bet-sa-wa | 巴都勿沙華 | |
| 3. Belombong... | Man-long-wong | 文隆黃 | |
| 4. Beting ... | Mit-ting ... | 蜜丁 | |
| 5. Bukit Limpit | Tai-pak-kong san | 大伯公山 | |
| 6. Johol ... | Yu-ho ... | 由河 | |
| 7. Juaseh ... | Yen-ah-sia ... | 源亞賒 | |
| 8. Junapoh ... | Yu-ma-po ... | 由麻坡 | |
| 9. Kumoi ... | Ku-moi .. | 咕每 | |
| 10. Kwala Gantam | Kwa-la ngan-tam | 掛喲眼擔 | |
| 11. Kwala Jempol | Kwa-la cham-bu | 掛喲占武 | |
| 12. Kwala Pilah | Pei-la ... | | |
| 13. Langkah ... | Lang-kap ... | 浪鴿 | |
| 14. Pasoh ... | Pa-sia ... | 吧賒 | |
| 15. Plangai ... | Bu-lo-ngei ... | 武羅崴 | |

| English | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| 16. Prigi Jerneh | Pi-lei-ngi ... | 吡哩宜 | |
| 17. Rengo ... | Leng-ngo ... | 羚莪 | |
| 18. Rompin ... | Lam-pin ... | 林邊 | |
| 19. Saki ... | Sa-ki ... | 沙幾 | |
| 20. Selaroo ... | Sa-la-lo ... | 沙喱羅 | |
| 21. Senalin ... | Chin-chi-len ... | 陳致連 | |
| 22. Serting ... | Si-lo-teng ... | 四羅丁 | |
| 23. Tebing Ting-gi | Thung-pin teng-ngi | 同邊丁宜 | |
| 24. Terentang... | Ti-lan-tang ... | 地蘭登 | |
| 25. Ulu Jelai ... | Wu-lu ya-nai ... | 烏路也乃 | |
| 26. Ulu Muar ... | Wu-lu cham-ma | 烏路占馬 | |
| *District of Tampin.* | | | |
| 1. Ayer Kuning | Ah-ek ku-lin ... | 亞益咕連 | |
| 2. Batang Malaka | Pa-tang ma-lak-kah | 把登嗎吠呷 | |
| 3. Bongek ... | Mong-yit ... | 望熱 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| 4. Chenong ... | Chin-long ... | 賤籠 | |
| 5. Chindras ... | Chin-ya-la ... | 賤也喱 | |
| 6. Gemencheh ... | Nga-man-che ... | 雅文姐 | |
| 7. Jeram ... | Yit-lam ... | 熱林 | |
| 8. Kampong Batu | Kam-pong Pa-tu | 金傍把都 | |
| 9. Kendong ... | Kan-tung ... | 根洞 | |
| 10. Keru ... | Ka-lu ... | 加路 | |
| 11. Kuala Gemas | Kua-la kam-bu | 掛喱禁武 | |
| 12. Kundor ... | Kin-chung ... | 見鐘 | |
| 13. Linggi ... | Lin-ngi ... | 鄰宜 | |
| 14. Lobok China | Lo-mok chin-na | 羅莫賤喱 | |
| 15. Makunyit ... | Ma-ku-yit ... | 嗎古熱 | |
| 16. Mantai ... | Man-thai ... | 文梯 | |
| 17. Pedas ... | Mun-ta ... | 門咑 | |
| 18. Pengkalan Durian | Peng-ka-lan lo-lin | 兵架蘭老連 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| 19. Prigi Terentang | Pi-la ti-lan-tang | 吡喇地蘭𥫱 | |
| 20. Rembau ... | Lam-mau ... | 林茂 | |
| 21. Repah ... | Lam-pa ... | 林把 | |
| 22. Salak Aamah | Sa-lat lo-pak ... | 沙吶羅白 | |
| 23. Sompang Linggi | Seng-pang lin-ngi | 性邦淋宜 | |
| 24. Tampin ... | Tam-pin ... | 淡邊 | |
| 25. Tebong ... | To-bong ... | 多黃 | |
| 26. Tanjong Kling | Tan-yong kat-leng | 丹蓉吉寧 | |
| *District of Port Dickson.* | | | |
| 1. Arang Arang | Ah-lang ah-lang | 亞冷亞冷 | |
| 2. Bagan Pinang | Ma-ngan mi-neng | 碼銀味寧 | |

| English. | Chinese. | Character. | Remarks. |
|---|---|---|---|
| 3. Chuah ... | Chho-nga ... | 初雅 | |
| 4. Jimah ... | Ye-mok .. | 夜莫 | |
| 5. Kwala Lukut | Chi-wo kong-hau | 致和港口 | |
| 6. Labuan Belik | La-pan mi-leh... | 喱班咪叻 | |
| 7. Lukut ... | Lu-kwat . . | 路骨 | |
| 8. Pasir Panjang | Pa-sia pan-yeng | 把脸板影 | |
| 9. Port Dickson | Po-tak-sun ... | 波德伸 | |
| | Pu-lo a-lang ... | 布羅亞冏 | |
| 10. Pulau Babi | Pu-lo ma-mi ... | 布羅馬味 | |
| 11. Pulau Bajudi | Bu-lo bu-chi-ti | 無羅武致支 | |
| 12. Semdayan ... | Chin-ta-yin ... | 賤打煙 | |
| 13. Sempang ... | Si-pong ... | 四邦 | |
| 14. Siginting ... | Si-ngan-teng ... | 四銀丁 | |
| 15. Si Rusa ... | Si lo-sa ... | 四路沙 | |
| 16. Tanah Merah | Chi-wo kong ... | 致和港 | |
| 17. Tanjong Gemok | Tan-yong ye-mok | 丹蓉夜莫 | |

| English. | Chinese. | Character. | Remarks. |
|---|---|---|---|
| 18. Telok Kemong | To-lo kam-pong | 哆羅金邦 | |
| *District of Jelebu.* | | | |
| 1. Gunong Hantu | Khu-tung an-tu | 古洞晏都 | |
| 2. Jelebu ... | Ngi-lok-wu ... | 宜吹胡 | |
| 3. Jerang ... | Yi-lang ... | 魚冷 | |
| 4. Kenaboi ... | Kha-la-moi ... | 咖喱美 | |
| 5. Kongoi ... | Kong-ngo ... | 江莪 | |
| 6. Kwala Klawang | Hung-mo-lau ... | 紅毛樓 | |
| 7. Peradong ... | Pa-tung ... | 吧洞 | |
| 8. Pertang ... | Bu-lo-tang ... | 武羅燈 | |
| 9. Semada ... | Seng kah lo-nga | 星架羅雅 | |
| 10. Sungei Kepong | Chim-ma-la ... | 占馬喱 | |
| 11. Titi ... | Ti-chi kong ... | 地支港 | |
| 12. Titi Petaling | Ti-chi ku-ta-lin | 地支古打鄰 | |

V. Chinese names of

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 1. Atok ... | A-tok ... | A-tuk ... |
| 2. Batu Talam ... | Ba-tu ta-lam ... | Ma-to ta-lam ... |
| 3. Batu Yon ... | Ha-tu yan ... | Wa-to yin ... |
| 4. Bentong ... | Bun-tong ... | Man-tung ... |
| 5. Budu ... | Kwu-lu ... | Wu-lu ... |
| 6. Bukit Fraser ... | Peh-chhiu kang ... | Pak-su kong ... |
| 7. Bukit Itam ... | Bu-kit i-tam ... | ... |
| | ... | Shim-pan ... |
| 8. Bukit Koman ... | Bu-kit ko-ban ... | ... |
| | ... | Shim-pan ... |
| 9. Bukit Telaga ... | Jih-si tiu ... | Ya-sz pei ... |

places in Pahang.

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 亞篤 | |
| 峇都藍打 | |
| 華都燕 | |
| 文冬 | Also known as "Wun-tong." |
| 湖盧 | |
| 白鬚港 | 'White beard's mining land' (so called after Mr. Fraser the original proprietor of the concession now worked by the Sempam Mining Company. Mr. Fraser had a long white beard). |
| 武吉逸淡 | The Hokkiens use the Malay name, but the Cantonese call this place as well as Bukit Koman 'Shim-pan' or 'Shim-pan kim wo' the Sempam underground mine. The Sempam river makes a loop in the direction of these places, though it is about two miles off at the nearest point. |
| 暹板 | |
| 武吉高閩 | |
| 暹板 | (See under Bukit Itam above.) |
| 廿四碑 | 'Twenty four stones' *i.e.* 24 miles from Kwala Kubu on the old bridle path. It is 29 miles distant by the new trunk road. |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 10. Burau ... | Mo-lai or Po-lai ... | Po-lai ... |
| 11 Chamang ... | Sam-meng ... | Sham-mang ... |
| 12 Cheka ... | Chek-kau ... | Chek-ko ... |
| 13 Durian Sabatang ... | Liu-lian si-ba-tang ... | Lau-lin sz-ma-tang ... |
| 14 Gali ... | Ga-li ... | Nga-lei ... |
| 15 The Gap ... | Jih-it tiau ... | ... |
| | ... | Fan shui au ... |
| 16 Goa ... | Go ... | Ngo ... |
| 17 Kechau ... | Kit-chhiu ... | Kat-chhau ... |
| 18 Kelola ... | Kia-lo-la ... | Kei-lo-la ... |
| 19 Kuala Lipis ... | Lip-pi ... | Lip-pei ... |
| 20 Kuala Medang ... | Kua-la mian-teng ... | Kua-la min-teng ... |
| 21 Kuala Tembeling ... | Kua-la tan-bi-ling ... | Kua-la tün-pok-lin ... |
| 22 Kuantan ... | Kuan-tan ... | Kwan-tan ... |
| 23 Panggong ... | Mang-kang ... | Phang-kong ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 布嚟 | |
| 岑孟 | |
| 卽高 | |
| 流連四峇登 | |
| 牙利 | |
| 廿一條 | 'Twenty one mile stones' *i.e.*, from Kwala Kubu. |
| 分水凹 | The Cantonese name means. |
| 鵝 | |
| 吉洲 | |
| 寄羅鐳 | The character for the third syllable is 'lui' not 'la'. |
| 立卑 | |
| 哇拉免丁 | |
| 哇拉段卜連 | The characters do not represent the Hokkien sounds. |
| 關丹 | |
| 崗江 | |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 24 Pedah ... | Mun-ta ... | Man-ta ... |
| 25 Pekan ... | Peh-kan ... | Pak-kan ... |
| 26 Perting ... | Po-li-teng ... | Po-lei-teng ... |
| 27 Pulau Tawar ... | Phu-lo ta-koa ... | Fu-lo ta-wa ... |
| 28 Raub ... | Lah-ut ... | Lah-wut ... |
| 29 Sega ... | Su-ga ... | Sz-nga ... |
| 30 Selensing ... | Su-leng-seng ... | Sz-ling-seng ... |
| 31 Semantan ... | Su-mian-tan ... | Sz-man-tan ... |
| 32 Sempam ... | Sim-pan ... | Shim-pan ... |
| 33 Sepan ... | Chioh-pan ... | Shak-pan ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 間打 | |
| 北根 | |
| 波厘頂 | The name refers to the district where the Perting River jcins the Bentong River and especially to the mine owned by the Tong Shun Kongsi. |
| 湖盧打哇 | |
| 勝活 | |
| 士牙 | |
| 士零星 | |
| 士免丹 | Semantan Ulu though a different place is similarly named. |
| 蟾賓 | The Chinese name is used for all that part of the district on the Sempam river between the lower part of Mr. Fraser's concession and the point where it flows into the River Semantan Ulu. |
| 石班 | |

| English. | Hokkien. | Cantonese. |
|---|---|---|
| 34 Sungei Lembing ... | Lim-beng ... | Lam-meng ... |
| 35 Tanjong Besar ... | Tan-yong .. | Tan-yung mut-sat ... |
| 36 Tanom ... | Tan-lim ... | Tan-lam ... |
| 37 Tebing Tinggi ... | Ti-peng ... | Tei-peng ... |
| 38 Telang ... | Tok-leng ... | Tuk-lung ... |
| 39 Tembeling ... | Tan-bi-ling ... | Tün-puk-lin ... |
| 40 Tranum ... | Bun-tong-khau ... | Man-tung hau ... |
| 41 Tras ... | To-lai ... | To-lai ... |
| 42 Tui ... | Tui ... | Tui ... |
| 43 Ulu Dong ... | Long ... | Lung ... |
| 44 Ulu Jelai ... | O-lo jit-lai ... | Wu-lo yat-lai ... |
| 45 Ulu Tembeling ... | O-lo tan-bi-ling ... | Wu-lo tün-puk-lin ... |

| Chinese Characters. | Remarks as to Meaning. |
|---|---|
| 林明 | |
| 丹容抹殺 | |
| 丹林 | |
| 地冰 | |
| 獨龍 | |
| 叚卜連 | The characters do not represent the Hok-kien sounds. |
| 文冬口 | 'Bentong mouth.' |
| 都憲 | |
| 堆 | The character in Cantonese is pronounced 'thui'. |
| 隆 | |
| 黎日盧湖 | |
| 湖盧叚卜連 | See under Tembeling above, |

## VI Chinese names of places in Perak.

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Bagan Serai ... | Ma-ngan sek-hoi | 馬登色海 | The name is phonetic. The Tiechius call it 'Ma-tang sek-hai.' |
| Batu Gajah ... | Wa-tu nga-ye | 華都呀爺 | |
| Bidor ... | Mi-lo ... | 美羅 | |
| Chemor ... | Chü-mo ... | 朱毛 | |
| Chenderiang ... | Chek-ngo-ye n g | 積莪曾 | |
| Enggor ... | Leng-lo ... | 玲羅 | |
| Gopeng ... | Mo-pin ... | 毛邊 | |
| Guntong ... | Sz-wui-kai ... | 四會街 | *i.e.* the street or place where people from the Sz-wui district of the Kwangtung province live. Similarly Macao is called O-mun kai; and I have heard Taipeng called Thai-peng kai by n e w arrivals. |
| Ipoh ... | Pa-lo ... | 坭羅 | This is the name by which the Kheh and Cantonese Chinese have always called Ipoh. Mr. W. D. Barnes informs me |

| English | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| | | | that formerly there were two Kampongs, one called Ipoh and the other Paloh. In Wilkinson's Dictionary Paloh is given as meaning "a hollow filled with stagnant water" while 'Ipoh' means 'upas-tree'. The Europeans and Hokkien Chinese called the town which was subsequently built, *Ipoh*, while to the Cantonese and Khehs the place became known as *Pa-lo*. |
| Kampar ... | Kam-po ... | 金寶 | |
| Kampong Kepayang | Kam-pong Panyang | 金榜班映 | |
| Kamunting ... | San-kong-mun | 新港門 | *i.e.* New district. This name was given by the Chinese to Kamunting because mines were opened there later than near Taipeng. Kamunting is about 3 miles from Taipeng. |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Kinta ... | Tai-phek-lik ... | 大吡叻 | *i.e.* Big Perak, as distinct from Larut which is *Siu-phek-lik* or little Perak. The Tiechius call it Toa-pe-lak. |
| Kota ... | Ku-ta ... | 古打 | |
| Kota Bahru ... | Ku-ta ma-lu ... | 古打馬路 | |
| Krian ... | Ko-yin ... | 高煙 | This name is also applied to Nibong Tebal in Province Wellesley. |
| Kuala Kangsa... | Phu-lo kong-sau | 浮勞江秀 | |
| Kuala Dipang... | Mi-phang ... | 美棚 | |
| Kurau ... | Ku-lau .. | 古樓 | |
| Lahat ... | Na-hat ... | 拿乞 | |
| Larut ... | Siu-phek-lik ... | 小吡叻 | The Tiechius call it 'Sio-pe-lak', and this is more nearly the sound of the characters. |

## CHINESE NAMES OF STREETS, &c.

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Matang ... | Ma-tang ... | 馬登 | |
| Padang Rengas | Siu-san ... | 燒山 | Burning hill, because lime stone used to be burnt here for lime. |
| Papan ... | Kap-pan ... | 甲板 | |
| Parit Buntar ... | Ko-yin ... | 高煙 | *Ko-yin* is simply Krian; another name is *sin-ba-lai* meaning the new 'balai' or Police Station, in distinction to that at Nibong Tebal over the border. |
| Polai ... | Po-lai ... | 波賴 | |
| Pusing ... | Pu-sing ... | 布星 | |
| Salak ... | Sha-lak ... | 沙叻 | |
| Selama ... | Sü-lam-ma ... | 緜南孖 | |

| English. | Chinese. | Character. | Remarks |
|---|---|---|---|
| Selibin ... | Süt-li-ping ... | 雪厘冰 | |
| Siputeh ... | Pu-tei ... | 步地 | |
| Slim ... | Su-lam ... | 上林 | |
| Sungei Raia ... | Sung-kai la-ye | 雙溝鑼爺 | |
| Sungei Siput ... (near Kuala Kangsar) | Wo Fung kai-cheung | 和豐街場 | 'Wo Fung' was a big mining kongsi here: Kai-cheung means 'town' or more literally 'street-area.' |
| Sungei Siput ... (near Kampar) | Shek-san-keuk | 石山脚 | 'The foot of the (lime) stone hill.' The mines are at the foot of a limestone cliff. |
| Sungkai ... | Süng-khai ... | 宋溪 | |
| Taipeng ... | Thai-peng ... | 太平 | Also Phek-lik-tsai. |
| Tambun ... | Tam-mun ... | 淡間 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Tanjong Malim | Phu-lo on-n a m | 浮勞安南 | Phonetic, probably from some Malay name. (?Pulau Anam.) |
| Tanjong Rambutan | Hung-mo tan ... | 紅毛丹 | This is usual Chinese for the Rambutan fruit. Hung-mo or ang-mo red-haired, so the Chinaman has been happy in his choice of a name for this fruit. |
| Tapah ... | Ta-pa ... | 打巴 | |
| Tekka Menglembu | Man-li-mong ... | 萬里望 | |
| Teluk Anson ... | Sz-ma-tang ... | 司馬登 | This is the Chinese version of Sa'batang. The old port was Durian Sa'batang 3 miles from the present town, the Chinese however still use the old name. I have heard *An-sun* used on a few occasions. |
| Temoh ... | Luk-chi-pei ... | 六枝碑 | *i.e.* Six mile-stones, because Temoh is six miles from Kampar on the road to Tapah. |
| Tronoh ... | Tun-lok ... | 端洛 | |

## VII. Chinese names of places in Selangor.

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Ampang ... | Om-pang ... | 暗邦 | The village between the 3rd and 4th milestones on the Kuala Lumpur Ampang road is Pun-kong, *i.e.*, 'the half way mines,' or, 'the mines half-way between Ampang and Kuala Lumpur.' |
| Bangi ... | Man-yi ... | 萬宜 | The Hokkiens call it Ban-gi. |
| Batang Benar ... | Pat-tang mei-na | 八登尾拿 | |
| Batu ... | Wa-tu ... | 華都 | |
| Batu Tiga ... | Sam thiu shek ... | 三條石 | *i.e.* three (mile)-stones, because Batu Tiga is 3 miles from Damansara, where sam-pans discharged cargo in pre-railroad days. |
| Beranang ... | Fu-lu-ngan ... | 芙蘆奸 | This name is also applied indiscriminately to some other places in the same district, *e.g.*, Blau and Broga. It is apparently phonetic. |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Bukit Raja ... | Mu-kit La-ye ... | 毛結鑼爺 | |
| Cheras ... | Chui-lai ... | 蕉賴 | |
| Gombak ... | Ngo-mak ... | 鵝墨 | |
| Jeram ... | Yi-lam ... | 宜冧 | |
| Jugra ... | Chho-ka-la ... | 粗加鑼 | |
| Kajang ... | Ka-yeng ... | 架影 | |
| Kanching ... | Kan-ching ... | 間征 | |
| Kapor ... | Ka-pa ... | 加吧 | |
| Kelumpang ... | Lung-pong ... | 龍邦 | |
| Kepong ... | Kap-tung ... | 甲洞 | |
| Kerling ... | Kat-lin ... | 吉裔 | |
| Klang ... | Pa-sang ... | 吧生 | Because the Malays give the name 'Pasang' to part of the town of Klang. |
| Kuala Kubu ... | (i) Kwu-mo ... | 古毛 | |
| | (ii) Sz-Nga-Ngok | 師牙岳 | *i.e.* Selangor in Cantonese guise. Kuala Kubu is the principal town in Ulu Selangor, and the Chinese have |

| English. | Chinese. | Character. | Remarks. |
|---|---|---|---|
| | | | adopted the name of the district, and dropped the 'Ulu.' |
| Kuala Langat ... | Nga-ngat kong-hau | 牙兀港口 | *i.e.* the mouth of the 'Nga-ngat river.' Nga-ngat=Langat obviously. |
| Kuala Lumpor | Kat-lung-po ... | 吉隆坡 | I have also often heard kai-(or ka-) lam-po. |
| Kuala Selangor | Sek-a-ngo kang-khau | 昔仔午港口 | These are Hokkien sounds, representing 'mouth of the river Selangor.' |
| Kuang ... | Kuang ... | 礶 | |
| Kuchai .. | Ku-tsai ... | 古仔 | |
| Kuyau ... | Kɔ-yu ... | 高腰 | |
| Padang Jawa ... | Pat-tang chiau-a | 八登爪亞 | |
| Pantai ... | Pan-tai ... | 板底 | |
| Parit Tengah ... | Pa-lit Teng-a ... | 吧列丁亞 | |
| Pasir Panambang | Pa-sa Pan-lam-pang | 吧沙板冧崩 | |
| Pasir Panjang... | Pa-sa Pan-yeng | 吧沙板影 | |
| Pĕtaling ... | Ku-ta-lin ... | 古打𡍮 | |

| English. | Chinese. | Character. | Remarks. |
|---|---|---|---|
| Port Swettenham | Pa-sang kong-hau | 吧生港口 | See Klang 'Kong-hau' means 'river mouth.' |
| Pudoh ... | Pun-shan pa ... | 半山吧 | *i.e.* half (way to the jungle. |
| Pulau Ketam ... | Po-lau kit-tam... | 布流結泰 | |
| Rasa ... | Lak-sü ... | 叻思 | (in Hokkien) Rasa is in Ulu Selangor, and this part of Selangor was proved by the census to be the 'Hokkien' part of the State—so the Chinese name of the place was a Hokkien name. |
| Rawang ... | Man-lau ... | 橈萬 | This may be for 'Bandar': part of Rawang is known as Bandar Bharu. |
| Salak (South) ... | Ku-ta-lin Sa-lak | 古打葬沙歷 | |
| Selangor ... | Sz-nga-ngok ... | 師牙岳 | Most commonly by residents outside the State called 'Kit-lang' (Klang) |

| English. | Chinese. | Character. | Remarks. |
|---|---|---|---|
| | Sut-lang-ngo ... | 雪蘭鵝 | |
| | Kit-lang ... | 吉冷 | |
| Sĕmunyih ... | Sz-wai-yik ... | 四圍益 | This is the recognised written name. It means "lucky all round.' The colloquial is 'Sz-man-yik.' |
| Sĕpang ... | Chi-wo kong ... | 致和港 | 'Kong' is a river, and 'Chi wo' is the chop of a gambier and pepper Kongsi, the largest in that district. |
| Serdang ... | Sa-tang ... | 沙戞 | |
| Sĕrendah ... | Seung-man-tan | 雙文丹 | Sometimes called 'Sz-man-tan. The river at this place is called Sungei Sĕmantan. |
| Sĕtapah ... | Man-lung-kong | 文龍港 | I have not been able to ascertain the explanation of this name. It may have some connection with the name of a small river there called 'Sungei Bilong.' |

| English | Chinese. | Character. | Remarks. |
|---|---|---|---|
| Simpah ... | San-pa ... | 新吧 | |
| Sungei Ayer Itam | Sung-koi A-yi yi-tam | 宋溪亞耶意泰 | |
| Sungei Besi ... | San-kai-cheung | 新街塲 | *i.e.* New town. Kai=street, cheung=open space—so that Kai cheung appears to mean 'street area' and so 'town.' It is not the usual form of expression. Sungei Besi got this name, because the locality of the town was changed some years ago. |
| Sungei Buloh ... | Sung-khoi Phu-lo | 宋溪蒲蘆 | |
| Sungei Dayong | Sung-khoi Na-yung | 宋溝拿容 | |
| Sungei Puteh ... | Sung-khoi Phu-thai | 宋蟻菩提 | |
| Sungei Tem-paian | Sung-khoi Tam-pa-yeng | 宋溝担霸影 | |
| Sungei Way ... | Sung-khoi Wai | 雙溝威 | |
| Tanjong Karang | Tan-yeung ka-lang | 丹洋架冷 | |

| English. | Chinese. | Characters. | Remarks. |
|---|---|---|---|
| Tanjong Malim | Fu-lo On-nam or<br>Phu-lo On-nam | 芙蘆安南<br>郭蘆安南 | This sounds like an adaptation of a Malay name meaning 'sex Islands'. But there is no authority for that, and it is not unlikely tnat it is a Chinees attempt at 'Ulu Bernam.' |
| Ulu Klang ... | Tham-kong ... | 淡江 | *i.e.* Dull-mine—Dull in the sense of not prosperous. The miners here met with little luck. But more probably another explanation is correct, *viz.* that the water of the river at Ulu Klang was much used for drinking purposes, 'tham' here meaning 'fresh.' |
| Ulu Langat ... | Nga-ngatshan... | 牙兀山 | 'Shan' practically corresponds to 'Ulu'—up-country. |
| Ulu Selangor ... | U-lau Süt-lang-ngo | 烏哋雪蘭莪 | See under Kuala Kubu. |
| Ulu Yam ... | Wa-tu- a-yam ... | 華都亞音 | There is said to be a rock (batu) which serves as a landmark. |

**VIII. Chinese names of places most of which have commercial or other connections with the Straits Settlements.**

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Acheen ... | A-che ... | Che-fau ... | 亞齊 |
| America[1] ... | Bi-kok ... | Mei-kwok ... | 美國 |
| | Hue-ki-kok ... | Fa-khei-kwok ... | 花旗國 |
| Amoy ... | E-mng ... | Ha-mun ... | 厦門 |
| | E-mui ... | ... | 厦門 |
| Annam ... | An-nam ... | On-nam ... | 安南 |
| Australia[2] ... | Sin-kim-suaⁿ ... | San-kam-shan ... | 新金山 |
| Austria ... | O-kok ... | O-kwok ... | 奧國 |
| Bangkok[3] ... | Bong-kok ... | Mang-kok ... | 網咯 |
| | Siam-kiaⁿ ... | ... | 暹京 |
| Batavia[4] ... | Ka-la-pa ... | Ka-la-pa .. | 加勝巴 |
| | Ba-tau-i ... | ... | 目投夷 |
| Batu Pahat ... | Ba-tu Pa-hat ... | Ma-tu-pa-hat ... | 峇榜吧轄 |
| Bombay ... | Bong-bai ... | Mang-mei ... | 望眉 |
| Borneo ... | Bo-nioⁿ ... | Mu-neung ... | 慕娘 |

1. Hue-ki-koh means 'flowery flag country.'
2. Sin-kia-suaⁿ means 'New gold fields' as distinct from California.
3. Siam-kiaⁿ means 'Capital of Siam.'
4. Ka-la-pa may be for the Malay word 'Kelapa,' coconut.

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Calcutta ... | Beng-ka-la ... | Mang-ka-la ... | 孟加勝 |
| | ... | Ka-lei-kat-ta ... | 加剌吉打 |
| Canton[5] ... | Kng-tang ... | Kwong-tung ... | 廣東 |
| | Se$^{n}$-sia$^{n}$ (Tiechiu) | Shang-sheng ... | 省城 |
| Cheribon ... | Che$^{n}$-li-bun ... | Cheng-lei-man... | 井里汶 |
| Chifu (or Chefoo)[6] | Ian-tai ... | Yin-thoi ... | 烟台 |
| China ... | Tong-kok ... | Chung-kwok ... | 中國 |
| | Tng-sua$^{n}$ ... | Thong-shan ... | 唐山 |
| Christmas Island[7] | Ka-su ma-su ... | ... | 嘉士嗎嶼 |
| | ... | Shek-tsai-fau ... | 石仔埠 |
| Cocob ... | Ku-kok ... | Ku-kok ... | 龜咯 |
| Colombo ... | Ko-long-bo ... | Ko-long-mo ... | 高浪霧 |

5. Se-sia-means 'provincial capital'—This is the expression invariably used by Tiechius—while Cantonese use the equivalent 'Shang Sheng.' In the same way 'hu-sia$^{n}$' will be used by the people of a prefecture to denote their prefectural city.

6. 'Smoky fort.' Yin Thoi' is really the name of the foreign concession' on the opposite side of the harbour to the Chinese town of Chi-fau 芝罘 and the name given to the site of the foreign concession has ousted the real name of the place.

7. 'Shek-tsai-fau' means 'Little stone port', alluding to the phosphate work.

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Corea ... | Kau-li-kok ... | Ko-lai kwok ... | 高麗國 |
| | Ko-le kok ... | ... | |
| Cuba ... | Ko-pa ... | Ku-pa ... | 古吧 |
| Deli ... | Jit-li ... | Yat-lei ... | 日裡 |
| | Jin-li ... | ... | |
| Dindings[8] ... | Pang-kok ... | Pong-kok ... | 邦咯 |
| Edie ... | I-li ... | Yi-lei ... | 怡里 |
| England ... | Eng-kok ... | Ying-kwok ... | 英國 |
| Foochow ... | Hok-chiu ... | Fuk-chau ... | 福州 |
| Formosa[9] ... | Tai-wan ... | Thoi-wan ... | 台灣 |
| France ... | Ho-lan-se ... | Fat-lan-sai ... | 法蘭西 |
| | Huap kok ... | Fat-kwok ... | 法國 |
| Germany ... | Tek-kok ... | Tak-kwok ... | 德國 |
| Haiphong ... | Hai-pong ... | Hoi-fong ... | 海防 |
| Hoihow ... | Hai-khau ... | Hoi-hau ... | 海口 |

8. 'Pang-kok' is Pangkor, the island and village at the mouth of the Dindings river.

9. 'Tai-wan' is the Chinese name, meaning 'Terraced bay.'

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Holland ... | Ho-lan ... | Ho-lan ... | 荷蘭 |
| Hong Kong ... | Hiang-kong ... | Heung-kong ... | 香港 |
| India[10] ... | In-to ... | Yan-to ... | 印度 |
| | Kit-ling-a tso ke (Colloquial Tiechiu) | ... | 吉寧仔祖家 |
| Italy ... | I-tai-li ... | Yi-tai-lei ... | 意大利 |
| Japan ... | Jit-pun ... | Yat-pun ... | 日本 |
| Jelebu ... | Jia-li-bu ... | Ya-lei-mu ... | 惹裡務 |
| Johor[11] ... | Yu-hut ... | Yau-fat ... | 柔佛 |
| | Sin-sua[a] ... | San-shan ... | 新山 |
| | Ja-ga (Tiechiu)... | ... | 惹呀 |
| Karimon ... | Ka-li-mun ... | Ka-lei-mun ... | 家里汶 |
| Kedah ... | Kit-ta ... | Kai-ta ... | 吉打 |
| Kelantan ... | Kit-lan-tan ... | Kat-lan-tan ... | 吉蘭丹 |
| Kopah ... | Ko-pa ... | Ko-pa ... | 高吧 |

10. 'Kit-ling-a tsou-ke' means 'Klings' home' : it is of course only colloquial.

11. 'Sin-sua' means 'New hills' or 'New country,' distinguishing oh or, I suppose, from Singapore.

| English. | Hokkien. | Cantonese. | Characters. |
|---|---|---|---|
| Labuan ... | La-buan ... | La-mun ... | 納閩 |
| Langkat ... | Lang-kat ... | Lang-kat ... | 籠葛 |
| Langkawi ... | Phu-lo kau-ui ... | ... | 浮羅交夷 |
| Lingga ... | Leng-ge ... | Lung-nga ... | 龍牙 |
| Malacca ... | Mua[a] lak-kah ... | Ma-lak-kak ... | 麻吠呷 |
| Macao [12] ... | O-mng ... | O-mun ... | 澳門 |
| | ... | O-mun-kai ... | 澳門街 |
| Macassar ... | Mang-ka-siah ... | Mang-ka-sat ... | 望加錫 |
| Manila ... | Sio-lu-song . | Siu-lui-sung ... | 小呂宋 |
| Medan [13] ... | Sa-wan ... | Sha-wan ... | 沙灣 |
| Mergui [14] ... | Tan-lau ... | ... | 丹老 |
| | ... | Tai-lau ... | 大佬 |
| Moulmein ... | Ma-tang-lien ... | ... | 峇淡棉 |
| | ... | Mu-lu-min ... | 毛勞棉 |

12. 'O-mun' is the Chinese name for the place known to Europeans as Macao.

13. Medan is known to Chinese as 'Sawan' meaning 'Sand bay.'

14. 'Tan-lau' means 'Red Sirih.' I have not been able to ascertain the reason for this name.

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Muar ... | Mua$^{n}$-po ... | Mo-fau ... | 蘇埠 |
| Muntok ... | Bun-to ... | Man-to ... | 文島 |
| Negri Sembilan[15] | ... | Kau-chau-fu ... | 舊州府 |
| Olehleh[16] ... | A-che ... | Che-fau ... | 亞齊 |
| Padang ... | Toa-pa-tang ... | Tai-pa-tang ... | 大吧冬 |
| Pahang ... | Pang-hang ... | Pang-hang ... | 彭亨 |
| Pakhoi ... | Pek-hai ... | Pak-hoi ... | 北海 |
| Pangkor ... | Pang-kok ... | Pong-kok ... | 邦咯 |
| Palembang[17] ... | Ku-kang ... | Kau-kong ... | 巨港 |
| Pekin ... | Pak-kia$^{n}$ ... | Pak-keng ... | 北京 |
| Penang[18] ... | Pin-nng-su ... | Pun-long-yü ... | 檳榔嶼 |
| | | Pei-nang ... | 畋能 |
| | | San-fau ... | 新埠 |
| Perah ... | Peh-lak ... | Phek-lek ... | 吡叻 |

15. 'Kau-chau-fu' is only a translation of Negri Sembilan. The name 'Fu Yung' *i.e.* (Sungei) Ujong is usually given to Negri Sembilan and all that part of the Peninsula.

16. This is 'Atjeh', the Dutch name of Acheen, in Chinese form.

17. 'Ku-kang' means 'great river.'

18. 'San-fau' means 'New town:—Penang was later known to Cantonese, than Singapore.

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Perlis [19] ... | Ka-yang ... | Ka-yang ... | 加央 |
| Pontianak ... | Khun-tian ... | Khwan-tin ... | 坤甸 |
| Pulo Bĕrandan [20] | ... | Fo-shui shan ... | 火水山 |
| | But-lan-tan ... | ... | 勿𦰡𦰡 |
| Rangoon ... | Liang-kong ... | Yeung-kwong ... | 仰光 |
| | Ang-kong ... | On-kung ... | 晏光 |
| Renong ... | Lin-long ... | ... | 糞廊 |
| Rhio ... | Liau-lai ... | Liu-noi ... | 廖內 |
| Russia ... | Go-lo-su ... | Ngo-lo-sz ... | 俄羅斯 |
| Saigon ... | Sai-kong ... | Sai-kung ... | 西貢 |
| Samarang ... | Sam-pa-lang ... | Sam-pa-lang ... | 三吧𦰡 |
| Sandakan ... | Sin-ngia-kan ...<br>San-ta-kan ...<br>Siang-hia k a n g | ...<br>San-ta-kan ...<br>... | 山打根 |
| Sandwich I'ds [21] ... | Toa$^{n}$ Hiong Sua$^{n}$ | Than - H e u n g shan | 檀香山 |
| San Francisco [22] | Ku kim-Sua$^{n}$ ... | K a u - k a m-shan | 舊金山 |

19. 'Ka-yang' is apparently the Malay 'Ka-jang.' I know no explanation of the name.
20. Kerosine-oil hills.
21. 'Sandalwood hills'.
22. 'Old gold diggings' as distinct from Australia.

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Sarawak ... | Su-la-wak ... | Sa-la-wak ... | 砂勝越 |
| Selangor ... | Kit-lang ... | Kat-lang ... | 吉隆 |
| | Sit-lang-ngo ... | Su-lang-ngok ... | 寔蘭莪 |
| Serapong ... | Sa-li-pong ... | Sa-la-pong ... | |
| Shanghai ... | Siang-hai ... | Sheung-hoi ... | 上海 |
| Siam ... | Siam-lo ... / Siam-ti ... | } Chhim-lo... | 暹羅 |
| Singkep ... | Sin-kip ... | San-kap ... | 新汲 |
| Situl ... | Si-tüt ... | Si-to ... | 寔突 |
| Sourabaya ... | Su-li-ba ... | Sz-shui ... | 泗水 |
| | Si-li-buat ... | Siet-lei-fa ... | 泗里末 |
| Spain [23] ... | Toa-lu-song ... | Tai-lui-sung ... | 大呂宋 |
| Swatow ... | Sua$^{n}$-than ... | Shan-thau ... | 汕頭 |
| Sungei Ujong ... | Hu-jiong ... | Fu-yong ... | 芙蓉 |
| Tavoy ... | Tho-a ... | Tho-nga ... | 土瓦 |
| Tebing Tinggi ... | Chiok-be t e n g-n g i | Shek-ma teng-yi | 石馬丁宜 |

23. Toa-lu-song 'means 'Big Luzon', as distinct from Manila which is called 'Small Luzon.'

| English. | Hokkien. | Cantonese. | Character. |
|---|---|---|---|
| Tokio[24] ... | Tang-kia ... | Tung-keng ... | 東京 |
| Tongkah ... | Kong-ka ... | Hung--ka ... | 通扣 |
| | ... | Kham-ka ... | 禽卡 |
| Tang[25] ... | Tang li ... | ... | 董裡 |
| | ... | Wu-chiu-tang ... | 梧椒等 |
| Trengganu ... | Teng-ka-no ... | Teng-nga-nu ... | 丁加奴 |
| Wei-hai-wei[26] ... | Ui-hai-ui ... | Wai-hoi-wai ... | 威海衛 |
| Yokohama[27] ... | Hue$^{n}$-pin ... | Wang-pan ... | 橫濱 |

24. 'Eastern capital.'
25. 'Wu-chiu tang' means 'Pepper Thang.'
26. 'Strong sea protection.'
27. 'Cross shore.'

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## Chinese Names of Streets in Singapore and Malacca, together with a list of names of the most important places in the F. M. S.

Some years ago the late Mr H. T. Haughton of the Straits Settlements Civil Service compiled a list of the native names, Chinese and Tamil, of some of the most important streets in Singapore

Since this list was published, Singapore has grown and streets have multiplied, so that Mr. Haughton's list, useful as far as it goes, is somewhat out of date.

I have in the previous pages endeavoured to bring it up to date, as far as the Chinese names are concerned. To do this satisfactorily, is impossible. Exact names for many streets do not exist. In this respect Singapore differs from Penang, where new streets are fewer and more easily identified. It is characteristic of the Chinese that in a matter of this kind, accuracy is the last thing that strikes them as essential. If you ask a Chinaman—or better still a Chinese woman—newly arrived and resident in Singapore, where he lives, the invariable answer will be "Singapore." A second query will perhaps elicit information as to the district of the town or island, but it will take many questions before the actual address can be ascertained, though it might have been given directly, if the person questioned had thought that it was of any importance.

The Chinese have a happy-go-lucky way of using one expression to describe any one of perhaps a dozen streets. Any Chinaman living at the town-end of Bukit Timah Road, in Albert Street, Selegie Road, near Kandang Kerbau Police Station, Short Street, or in any of the numerous lanes in that neighbourhood will, if asked where he lives, reply "Tek Kah" (i. e. Foot of the bamboos), and unless cross-examined would not volunteer any further information, though the answer might mean any one of a dozen streets.

The more important thoroughfares have recognised names known to Chinese of all classes. There are, however, a number of new and smaller streets, and it appears to me that it is important that these should be easily identified. Especially is it important that official interpreters should have a through knowledge of the names, English and Chinese, for all the streets in the town, a matter in which, in my experience, many Government interpreters are lamentably ignorant.

As already remarked, in many cases there are no Chinese names for streets. Tanjong Pagar and Kampong Kapor districts are full of new roads and streets, nameless at present to the Chinese, and defying identification. The houses are new and often not occupied by Chinese, but Singapore is a Chinese town and any one who has watched its growth will realise that in all likelihood these new roads will be busy throughfares be-

fore many years are past, and sooner or later no doubt the Chinese will find names for them. Now it seems a pity that street-names should be multiplied unsystematically in Chinese as well as in English, and I should like to see the Municipality step in and take the mater in hand. Suggestions need not be made here as to what plan should be pursued, but there are several alternative methods, and I think something ought to be done.

I should state that infallibility cannot be claimed for this list. Various informants have given contradictory information. However such as it is, it may, I hope, prove useful to any European with a knowledge of Chinese and to any Chinaman with a knowledge of English.

I have added the names for some of the more important bridges, police stations and public buildings, and where I have been able to ascertain them, the names of the country roads and districts. Here I found it very difficult to obtain exact information, most of what is given having been kindly furnished by Mr. Langham-Carter of the Land Office.

Following will be found a list some of the places with which Singapore has connections, commercial or otherwise. This includes the names of European States and, at the other extreme, local coast ports.

Mr. E. A. Gardiner of the Straits Police kindly sent me a list of the names of streets in Malacca, with some interesting notes by Mr. Go Lai Kui, the Government Interpreter there.

And through the courtesy of various officers of the Federated Malay States Civil Service, I have been furnished with the Chinese equivalents for the names of the most important places in the States.

Mr. A. M. Pountney contributed Selangor.

Mr. W. Cowan sent the Perak names, with notes by Mr. W. D. Barnes.

For Pahang I am indebted to the District Officers at Raub and Kuala Lipis.

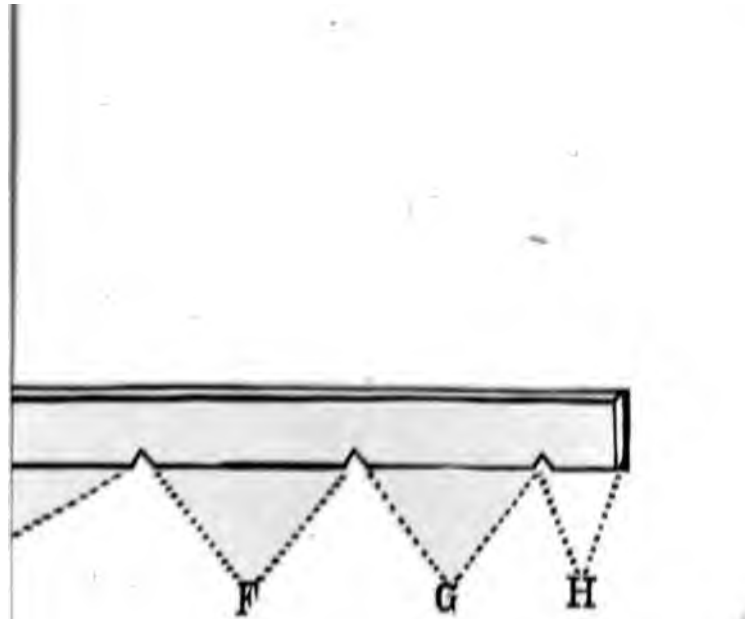
The Negri Sembilan names were supplied through Mr. Ridges.

I was unable to obtain Chinese names for up-country Kampongs in Malacca—there are none apparently—and the Chinese population is comparatively thin there.

Penang and Province Wellesley have already been dealt with in the admirable notes of Mr. Lo Man Yuk.

Finally I must express my thanks to Messrs. Ho Siak Kuan and Leung Pui Kam of the Chinese Protectorate in Singapore and Penang respectively, for their assistance in filling in the Chinese characters for the names.

*Penang, March, 1904.*




*R. Shelford.* × ½

## Addendum to Mr. Hose's paper on Methods of Reckoning Time.

Since this paper was written a good deal more information about the Kenyah Sundial has come to hand, and it is evident that the methods employed by the different tribes in measuring the noon-day shadow and the omens attached to the respective lengths of the shadow vary considerably. This is but natural since the different tribes plant their crops at different times of the year. A figure of a measuring-stick (*asu do*) of the Aki Kenyahs, a down-river tribe who plant in July, is now given; the actual specimen is in the Sarawak Museum, and I am indebted to the curator, Mr. R. Shelford, for the drawing.

### Explanation of the Figure.

*Stick (asu do) used by the Kenyahs to measure the shadow cast by the Sundial (tukar do).*

The stick is 72 centimetres in length and 1.7 centimetres broad; one border is notched. The end marked by an asterisk in the figure is held in the hand so that the stick lies along the extended arm, the notches corresponding to certain regions of the arm and hand. The relation of the length of the shadow cast at noon-day by the *tukar do* to the spaces between the notches determines the omen given by the *dayong* as described in the paper. The letters A to H refer to the spaces between the notches.

A. Known as *Kujut Kata*, the knuckles; this is a good time for planting, but there will be deaths in the house and the people of the house will always be crying and rubbing their eyes with their knuckles; in pounding out the padi, some padi will always remain mixed with the rice.

B. Corresponds to the position of the string often worn round the wrist to tie in the soul of the wearer, a bead or some

charm being often threaded on the string. This marks a good time for planting.

*Sang*, corresponds to the position of the wristlet made from fibres of the *sang* palm by men on the war paths to distinguish them from the enemy. A good time for planting.

*uga mipit*, marks a bad time for planting because the sparrows (*mipit*) will destroy the crop.

*n ok*, i.e., the small part of the forearm, a bad time for planting.

*n aiar* i.e., the thick part of the forearm, a bad time for plant

i.e., the brass armlet worn round the biceps; marks a good time for planting.

*Supeh*, i.e., the junction of the coat-sleeve with the coat; a good time for planting.

## Dr. Brandstetter's Malayo-polynesian Researches: An Appreciation.

There is (or was) in the East, a newspaper claiming to have the largest circulation in Asia, British India excepted. The exception is a big one. If in the same way I were to say that Professor Brandstetter of Lucerne is the soundest and most accurate Malayan scholar in Europe, outside of Holland, I should be merely stating in the fewest words a plain fact which in my judgment, is not as widely known as it deserves to be; and I hope that no one will so far misunderstand my meaning as to imagine that I am attempting to make a scurvy jest at the expense of that learned writer. Under the general title of 'Malayo-Polynesische Forschungen" he has issued a number of very valuable studies on Malayan subjects, whose titles I subjoin in a note for the benefit of all whom it may concern.* There

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* *First Series.*

I. Der Natursinn in den ältern Lit eraturwerken der Malayen.
II. Die Beziehungen des Malagasy zum Malayischen.
III. Die Geschichte des Hang Tuwah, ein älterer Malayischer Sittenroman, ins Deutsche übersetzt.
IV. Die Geschichte von König Indjilai, eine bugische Erzählung, ins Deutsche übersetzt.
V. Die Gründung von Wadjo, eive historische Sage aus Südwest celebes, ins Deutsche übersetzt.
VI. Das Lehnwort ins Bugischen.

*Second Series.*

I. Die Geschichte von Djalalankara, ein Makassarischer Roman, in deutscher Sprache nacherzählt.
II. Tagalen und Madecassen, eine sprachver-gleichende Abhandlung, als Orientierung für Ethnographen und Sprachforscher.
III. (In preparation) Beiträge zur Fixierung der Stellung welche die Südphilippinischen Idiome innerhalb des Malayo-polynesischen Sprachstammes einnehmen.

is not room here to discuss them all, nor are they all of equal interest to readers in the Malay Peninsula; I will therefore confine myself to those which appeal more particularly to students of Malay.

His two studies on the "relation of Malagasy to Malay" (1893; pp. 43) and on "Tagal and Malagasy "(1902; pp. 85), taken together, give a very clear idea of the interconnection of these languages and throw considerable light on their past history and development.

Brandstetter's strong point is his strictly scientific method. He will not accept conjectural identifications or vague unsupported theories of relationship: he distinguishes most carefully between what he considers to be *proved* and what is merely *probable*. Consequently his results, when they are such as he himself considers certain, may be accepted with a high degree of confidence by his readers.

In choosing two languages so widely separated in geographical distribution as Tagal (or Tagalog) and Malagasy for his points of comparison, he brings out very strikingly the essential unity of the Malayan family of languages, a unity which is evidently due to common descent and not, as Crawfurd perversely maintained, to the influence of Malay or Javanese modifying a number of originally alien tongues. English students of this subject seem to find a difficulty in getting away from the idea that Malay is the normal type of a Malayan language: that, however, is very far from being the case. From the point of view of phonology, Malay is often relatively very archaic, much nearer to the original sounds, than some of the cognate tongues (e. g. Malagasy and Javanese); but even in this regard Malay is not always the truest representative of the primitive type. Then again Malay lacks many old words which have been preserved in distant and widely separated parts of the Malayo-polynesian region; and this, as van der Tuuk pointed out long ago, is proof enough that they do not owe their common element to Malay. Further, Malay is so much simplified in its grammar that it occupies in the Malayan family much the same relative position, that modern Persian or English occupy among the Indo-European languages: its system of agglutination has been re-

duced to a mere remnant, whereas some of these languages have preserved it in something like its primitive luxuriance. In this respect Tagal and Malagasy are more archaic than Malay. An example will best explain what is meant. The Malay *surat* "writing," is represented in Tagal by *sulat*, in Malagasy by *sóratra* (Malagasy *o* is pronounced *u*).

This verb can be conjugated thus in these two languages:—

ACTIVE.

| | *Tagal.* | *Malagasy.* |
|---|---|---|
| *Present* | nanunulat | manoratra |
| *Preterite* | nanulat | nanoratra |
| *Future* | manunulat | hanoratra |
| *Imperative* | manulat | manaráta |

PASSIVE.

| | *Tagal.* | *Malagasy* |
|---|---|---|
| *Present* | sinusulatan | sorátana |
| *Preterite* | sinulatan | nosoratana |
| *Future* | susulatan | hosorataua |
| *Imperative* | sulatan | soráty* |

Here, besides prefixes and suffixes, infixes and reduplication play, in Tagal, a great part.

It is not necessary to add here, by way of contrast, the meagre list of variations which the Malay verb usually assumes: they will be familiar to the reader. Apart from these, there are in Malay (as Dr. Luering pointed out in No. 39 of this Journal) a few scattered survivals which show that the language formerly had a more fully elaborated system of agglutination than it now possesses.

The comparison of some of the words common to Tagal and Malagasy (of which Brandstetter gives a remarkably long and interesting list) shows that in some cases a form more archaic than that of Malay must be inferred as the common original. Thus, for instance, it is practically certain that "fire"

*$y=i$, as in English at the end of a word: Malagasy spelling was invented by English missionaries.

was once *apui* not *api*, and "dead" *matai*, "liver" *hatai*, and so on. But even more interesting, perhaps, is the light which these common words throw on the state of civilization of the primitive ancestors of these tribes before their dispersion. It is clear from the comparative vocabulary that they were quite at home on the tropical seas: they have common words for the sea and the shore, for the crocodile, the prawn, the ray or skate (fish), and the dugong (though the Malagasy *trozona* now means whale, apparently); they had sails for their boats and they used hooks for fishing. Two, at least, of the points of the compass are represented by common words, though their relative directions have shifted and no longer correspond in the different languages. So too for words relating to life on land: they were acquainted with rice, yams, bamboo and, probably, the cocoanut and screw-palm (pandanus); their material civilization comprised acquaintance with iron and, apparently, silver; they had knives and files, and hewed wood into stakes and planks; they had houses with walls and roofs; they had pots, dishes and spoons (or ladles) and mortars with pestles (probably the large ones even now used for pounding rice); and they wore garments of some sort of cloth. They had some simple standards of measurement, notably the fathom (the distance across the outstretched arms). They had words for "month" and "year," and a series of numerals to 1000, inclusive. Words relating to the transactions of life in a social community are also not altoghter absent; buying and borrowing, debt and payment, are ideas which appear to have been familiar to them; and they are not without words which indicate differences of social rank, e. g. the existence of chiefs to whom personal respect was due. The widespread institution of the "taboo" appears to have already existed among them in those early days.

This is by no means an exhaustive account of the condition of these people: I have merely picked out a few of the salient facts embodied in Brandstetter's list of words, and these it must be remembered are drawn from Tagal and Malagasy only. If the other Malayan languages (whose name is legion) were taken into account, many additional details could be added to this outline sketch: it is enough, however, to show that such

researches as these may lead to very interesting discoveries, quite apart from the merely technical details of philology.

These last I shall not pretend to deal with here, only referring the reader to these two valuable monographs, where he will find them set out and very skilfully handled.

I have left myself little space to notice the other numbers of the series to which I would draw particular attention. Of the Hikayat Hang Tuah I will merely say that it is an historical romance of the life of the well-known Malacca hero, and that while it is probably of no great value from the point of view of history strictly so called, it is a highly interesting picture of Malay life and manners and by no means deserves the unmixed contempt which Crawfurd thought fit to pour upon it. It dates probably from the early part of the 17th century and is a recognized specimen of the best type of Malay classical prose literature.

The only other of Brandstetters' works which I propose to mention here is his essay on the Malay appreciation of the beauties of nature (and their aesthetic sense in general) as evidenced in their literature. Here he lays a good deal of Malay prose and poetry under contribution and by a number of well selected examples reveals a side of the Malay character which is not, I think, in their every day life at least, very obvious to the ordinary observer. He has confined himself to literary works older than the 19th century, to the exclusion of all modern productions, and perhaps therefore European influence may be discounted: the question of the imitation of India models is more difficult, but on the whole Brandstetter is disposed to regard the mental attitude which he illustrates as being really original to the Malay mind, and he has not to take his examples from works, like the *Sri Rama*, which are avowedly based on Indian originals. Even in these, however, it may be remarked that the local colouring is distinctly Malay; and one need only look, for instance, at the beautiful passage quoted and translated by Maxwell on pp. 89 and 90 of No. 17 of this Journal, to be convinced that the Malay rhapsodist from whom Maxwell derived his version of the story has not servilely copied any Indian model but has given the rein to his own fancy and freely exercised his own descriptive power.

It is impossible to go into details here, but I hope that the indications I have given will induce some of the readers of this Journal to refer both to Brandstetter's essay and to his Malay originals. Victor Hugo did not disdain to translate Malay pantuns: a poet himself, he could appreciate the poetry which many of them so quaintly embody, and I venture to think that an anthology could be made up out of Malay literature which would be worthy to rank with many other such collections in better known languages. Unfortunately the Malay genius does not lend itself to sustained effort: it rises here and there to real heights of poetic fancy, but taken as a whole it is undoubtedly pedestrian. All the more reason, therefore, is there for picking out the gems which lie hidden amongst so much that is little better than dross.

This short notice can hardly do justice to the excellence of Brandstetter's work: I can say no more, in summing up, than that that he is a worthy pupil of the Dutch School, and that in attempting to carry on the work of Malayan research beyond the confines of Holland and Netherlands India, he is setting an example which may well be followed elsewhere. It is unfortunate that the work of Dutch scholars in this line of study is so little known to English readers. The initial difficulties are not nearly as great as they are supposed to be: one can easily pick up enough understanding of the Dutch written language to be able to read intelligently a Dutch essay on a Malayan subject. However, as Englishmen, persistently and very much to their own disadvantage, continue to ignore the Dutch authorities, perhaps it may be some help to such of them as have a fair knowledge of German to have Brandstetter's work to refer to. His work, however, is purely original, though he has been trained in the Dutch school and would be the first to acknowledge his indebtedness to it, as indeed he repeatedly does; and when one says that he is making for himself a place in the list of distinguished Malayan scholars which holds such names as van der Tuuk, Kern, Niemann and Brandes, one need, I think, say no more.

*C. O. Blagden.*

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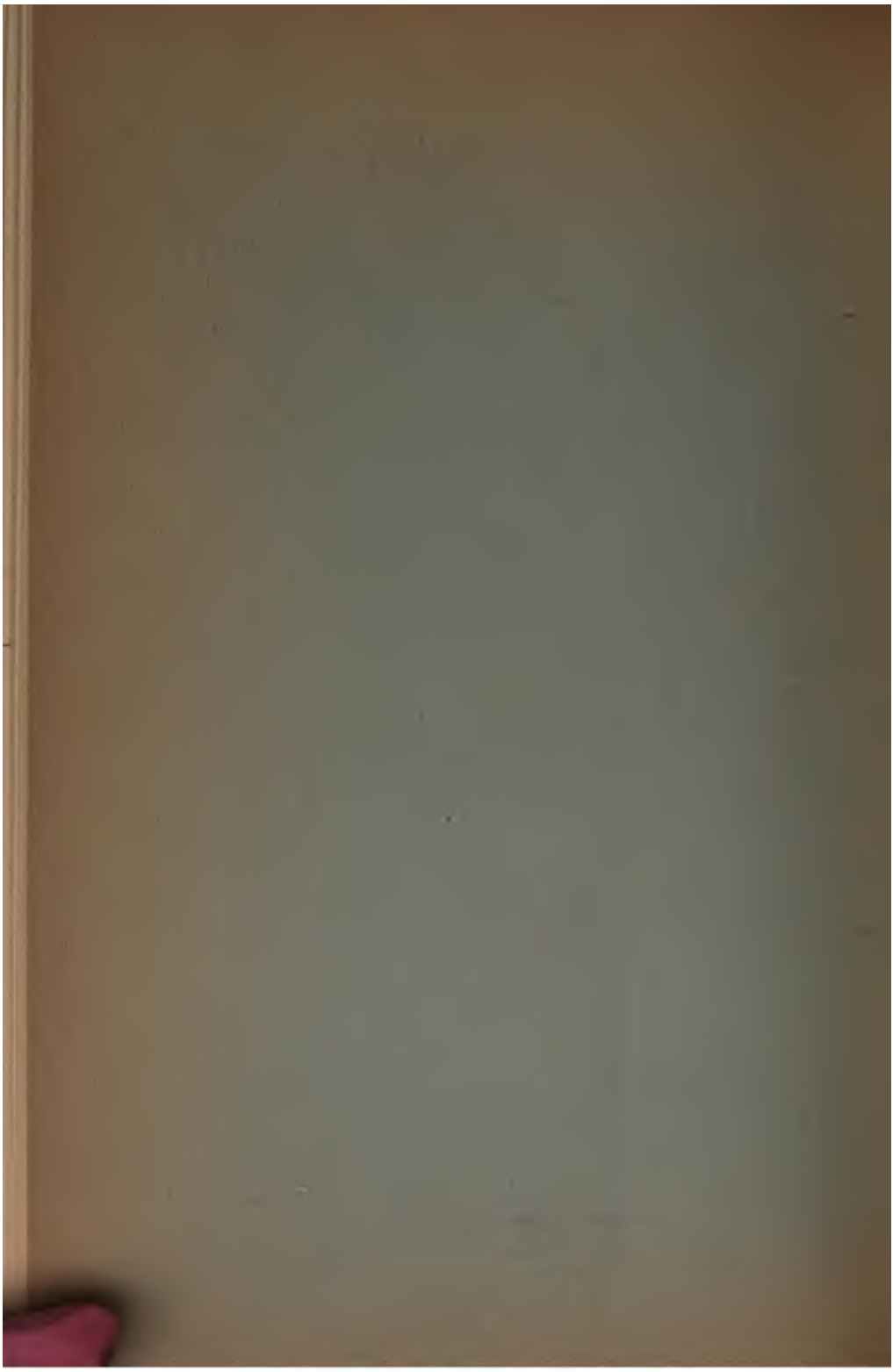
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PART II.

# Personal Ornaments.

By R. Shelford, M. A., F. L. S., etc.
*Curator of the Sarawak Museum.*

This part of the illustrated catalogue treats only of the objects worn for decorative purposes by the natives of Borneo at the present day or in the immediate past, the objects forming no part of an essential body covering or attire. Consequently such articles as caps, hats, jackets or kirtles decorated with bead-work, metal rattles, cowries etc. are not included in this part of the catalogue, they must be catalogued subsequently under some such heading as Dress or Festal Attire. Similarly I have excluded the antique ornaments and fragments of ornaments that are found frequently by native gold-seekers in the head-waters of the Sarawak river and elsewhere in Sarawak and of which there is a small collection in the Sarawak Museum; they all seem to belong to a former civilization merely transitory in Borneo.* An exception has been made in favour of the antique beads of uncertain origin so largely worn in necklets and girdles by the men and women of most Bornean tribes; these are shortly discussed in their proper place in this paper.

The question of the relationship between magic and personal ornamentation has not been lost sight of and many enquiries on the subject have been set afoot, without, however, eliciting much information of any importance. In face of the facts recorded from other parts of the world, it seems in the highest degree probable that certain ornaments of some Bornean tribes were also endowed once with a magical significance, and it is possible that the restriction of the wearing of certain ornaments at the present day to individuals of a given social

* For an account of and a suggestion as to the origin of some gold ornaments found at Limbang in Northern Sarawak in 1900 see Man 1903 No. 2. "Note on a collection of Gold Objects found in Sarawak, in the possession of His Highness the Rajah of Sarawak" by C. H. Read.

standing or at certain periods only of their lives* is a relic of magical powers more appreciated in the past than nowadays. As might naturally be expected it is among the more primitive Borneans that ornaments functioning also as charms are met with. Thus, Kalabit youths when visiting new districts wear a necklet of decorative seeds as a charm against evil spirits; Land-Dyak men also wear a necklet of beads and the canines of leopard and bear when away in a strange country, the beads are frequently regarded as charms against specific diseases and the whole ornament is regarded as valuable enough to buy off the wearer's life if that is threatened by spirit or human enemy. The necklet worn by the Land-Dyak female witch-doctors described below is a badge of office and magic resides in the charms attached to the necklet but not in the necklet itself. Kyans and Sea-Dyaks often wear round the wrist a string on which is threaded an antique bead, this is a sign that once the wearer was ill and lost temporarily his vital spark (*Samengat*), but that subsequently it was recovered, whereupon he or a witch-doctor tied it in with the beaded string to prevent it from escaping again; but this bead can hardly be regarded as an ornament, it is a charm pure and simple and in fact a carpal bone of the mouse deer or even a tatu mark is often substituted for it. These are practically the only examples of "magical ornaments" that I have encountered, but a few more references to the restrictions imposed on the wearing of other ornaments will be found scattered throughout the catalogue.

I have been able to arrive at no better classification of Ornaments than the following:—

1. Ornaments worn in the hair and in a head-dress.
2. Ornaments worn in the ears.
3. Ornaments worn on the neck.
4. Ornaments worn on the limbs.
5. Finger rings.
6. Ornaments worn round the body.
7. Buttons and buckles.

* e. g. amongst the Kyans only those who have taken heads are allowed to wear ear-pegs made from the canines of the clouded leopard, and amongst the Sea Dyaks only married women are supposed to wear brass corsets.

## *Ornaments worn in the hair and in a head-dress.*

I. Hairpins.
II. Combs and Tiaras.
III. Fillets and Head-bands.
IV. Head-dress ornaments.

### I. HAIRPINS.

1. Murut—"pleng."

These are flat pointed strips of deer's horn worn by men; Murut men wear their hair long but tie it at the back of the head in a simple knot and the "pleng" is passed through the knot to prevent it from becoming untied. Ling Roth (l.c. vol. ii. p. 59) figures two Murut "pleng" in Dr. Hose's collection, one of which is very like specimen *e* described below.

i. Murut of Trusan district.

*a*. 19·5 cm. long, 4·8 cm. broad at the top. A border of simple geometrical design is fretted in the upper end; one side (the front) is fluted with seven shallow longitudinal grooves, on the other side (the back) some rough geometrical and phyllomorphic designs are incised.

From the Trusan River. [Pd. 1. xii. 02].
Catalogue No. 1198. (Plate I. fig. 1, *a*).

*b*. 19 cm. long, 4·7 cm. broad at the top. A very narrow border of simple design is fretted in the upper end; the main part of the ornament is occupied by a fretted phyllomorphic design; above and below this on both sides is incised a zone of double-scroll pattern (*arit blavit*=interlacing); on the back some confused incised lines are mixed up with the fret pattern.

From the Trusan River [Pd. 1. xii. 02].
Catalogue No. 1199 (Plate I. fig. 1, *b*).

*c*. 18·3 cm. long, 4·2 cm. broad at the top. The top of the ornament is fretted; a simple phyllomorphic pattern with hatched background is incised on the front, a geometrical design (*arit blavit*) bounding it above and below.

From the Trusan River. [Pd. 25. iii. 04].
Catalogue No. 1403.

ii. Peluan Murut of the Upper Padas river, British North Borneo.

*d*. 28·4 cm. long, 6·6 cm. broad at the top. A square projection at the top; the upper third is covered both back and front with tin-foil, a raised line runs down the centre of the front. On the back of the ornament at the top is stuck a lump of dammar, which serves to hold in position a tuft of goat's hair and a few bright blue feathers from the back of the male fairy bluebird *Irena criniger*; in the resinous lump are imbedded a seed of *Adenanthera pavonina* and a piece of shell.

Acquired by exchange 9. iv. 04.

Catalogue No. 1409. (Plate I. fig. 1, *c*).

*e*. 18·6 cm. long, 1·7 cm. broad. An asymmetrical flat pointed strip of deer's horn, not decorated in any way.

Acquired by exchange 9. iv. 04.

Catalogue No. 1410. (Plate I. fig. 1, *b*).

A somewhat similar specimen is figured by Ling Roth (l.c. vol. II. p. 59).

iii. Tagal.*

*f*. 22·6 cm. long, 5·8 cm. broad at the top. Nearly the whole of the front of the pin is covered with tin-foil, the apex and a short length in the middle alone being uncovered; the tin-foil is in two pieces, a phyllomorphic design has been fretted in the lower. On the back of the ornament at the top is stuck a lump of dammar which serves to hold a small tuft of goat's hair, and in the resinous lump are embedded two seeds of *Adenanthera pavonina* and a portion of a pale blue bead; just below this a disc of looking-glass is fastened with dammar to the pin.

From the Upper Padas, British N. Borneo.

Sir P. F. Cunynghame, Bart. [P. 22. viij. 92].

Catalogue No. 747. (Plate I. fig. 1, *d*).

*g*. 21 cm. long, 6·1 cm. broad at the top. The upper third, both back and front is covered with tin-foil, in front at the top two circular depressions have been ground in the horn and into

*These Tagal are a sub-tribe of the Murut and of course have no affinity with the Philippine Tagalo or Tagal; they dwell in the highlands forming the watershed of the Upper Padas and Upper Trusan rivers.

these have been let two discs of looking-glass; a lump of dammar at the back secures a tuft of goat's hair; two small discs of tin-foil are let into the ornament at the back near the apex, and the back is further decorated with a roughly incised phyllomorphic design.

From the Upper Padas, British N. Borneo.
Sir P. F. Cunynghame, Bart. [P. 22. viij. 92].
Catalogue No. 748. (Plate I. fig. 1, *e*).

2. Murut—hairpins.

These are boar's tusks, worn by men in the same way as the "pleng."

*a*. A boar's tusk scraped and ground smooth and white; into the pulp-cavity a tuft of human hair is thrust and secured by dammar. An incised double-scroll design (*arit blavit*) runs round the base of the tusk. 20·5 cm. measured along the outside curve.

From the Trusan River. O. F. Ricketts, Esq. [P. xi. 88].
Catalogue No. 746. (Plate I. fig. 1, *f*).

*b*. A boar's tusk scraped and ground smooth and white; in the pulp-cavity is fixed a plug of wood shaped like the basal portion of a tusk and prolonging the curve of the tusk to which it is fitted; a piece of looking glass is fixed with dammar on to the end of the wooden plug and a rattan plait round the basal portion of the tusk proper prevents the pulp-cavity from splitting open. One side of the tusk is decorated with two incised phyllomorphic designs, the background of the designs, as is usual in Murut fictile art, being filled in with punctures and hatching. 28·2 cm. measured along the outside curve.

From the Trusan River. [Pd. ix. 02].
Catalogue No. 1167. (Plate I. fig. 1, *g*).

3. Murut(?)—brass hairpins.

*a*. A flat curved strip of brass, shaped like a narrow knife-blade, one end is pointed, the other is broken; the concave border, corresponding to the back of the knife-blade, is perforated throughout about two-thirds of its length with a series of small holes.

Length (in a straight line) 19·6 cm.; greatest breadth 1·3 cm. Hon. C. C. de Crespigny [P. 4. vii. 78].
Catalogue No. 662 *a*. (Plate I. fig. 2, *a*).

*b*. Very similar to the preceding but larger; one end is pointed, the other is curled up into a flat spiral; there are fewer holes pierced in the concave border, some of them are supplied with brass rings; there is one hole lower down on the convex border.

Length (in a straight line) 23·3 cm.; greatest breadth 1·7 cm. Hon. C. C. de Crespigny [P. 4. vii. 78].
Catalogue No. 662 *b*. (Plate I. fig. 2, *b*).

These pins are said to be worn by either sex. Their origin seems to be extremely doubtful and this type of hairpin is certainly not known now amongst the Muruts of the Trusan River though, it is quite possible that a former generation used them.

4. Kalabit—"plin."

*a*. A slender pointed steel rod worn by men in the same way as the Murut "pleng." The blunt end for a distance of 6 centim. is twisted into a close spiral.
Total length 26·2 cm. [Pd. 30. iii. 03].
Catalogue No. 1253. (Plate I. fig. 2, *c*).

5. Dusun—"timbok."

Small metal hairpins worn by women.

*a*. A flat strip of steel, bent into a slight curve; one end (the upper) is broader than the lower, the sides taper gradually. A small hole is bored in the upper end.
Length (in a straight line) 12·5 cm.; breadth (at top) 1·2 cm. From Kiou, British N. Borneo.
Drs. G. D. and H. A. Haviland coll. [P. v. 92].
Catalogue No. 759. (Plate I. fig. 2, *d*).

*b*. Very similar, but smaller and made of brass, the lower end less pointed. To the hole in the broad end is attached a long (69 centim.) string of common glass beads of European manufacture, the majority are red, a few blue, green, black and white ones being intermixed; the string at its loose end is

made fast to a pearl shirt-button from which depend four short strings of similar beads forming a tassel. The hair is tied in a knot on the top of the head, the pin is stuck through it and the bead string is wound round the base of the knot.

Length (in a straight line) 10·9 cm.; breadth at top 0·9 cm. From Kiou, British N. Borneo.

Drs. G. D. and H. A. Haviland coll. [P. v. 92].

Catalogue No. 760. (Plate I. fig. 2, *e*).

Ling Roth (l.c. vol. II. p. 58) figures a silver hairpin from the Baram River (ex. coll. Peek); it is a slender rod with a star-shaped head and I believe it to be of Malay origin and worn by women.

## II. Combs and Tiaras.

1. Dusun—wooden combs.

These are worn by women in the knot of hair at the back of the head; * they are usually flat-sided with a long shaped handle (cf. Ling Roth l.c. vol. II. p. 59 and Whitehead, Exploration of Kina Balu, Plate opposite p. 108 fig. X). Whitehead (l.c. fig. IX) figures also a double comb, the teeth springing from each side of a horizontal wooden strip.

*a*. Wooden comb, with nine teeth and an elongated shaped handle; the two flat sides are decorated with geometrical designs painted on with black resin.

Total length 12 cm. greatest breadth 3·5 cm

From N. of Kina Balu. Mr. Steffen [P. vi. 92].

Catalogue No. 783. (Plate VIII. fig. 1).

2. Malay—"sisir penyu."

*a*. A broad curved comb of tortoise shell with numerous teeth; the "back" is cut into a scallopped edge. The comb is worn by women at the back of the head just above the knot of hair. Length (measured along the curve) 14·6 cm.; breadth 4·2 cm. [Pd. xii. 02].

Catalogue No. 1213. (Plate I. fig. 2, *f*).

* No magical significance whatever appears to be attached to these combs or to the patterns on them, as is the case with the very similar combs worn by Semang women of the Malay Peninsula.

3. Malay—"sisir."

*a.* A silver tiara worn by brides at the marriage ceremony. It consists of a triangular plate of silver, slightly curved; the upper sides of the triangle are scallopped, and a phyllomorphic design is executed in repoussé work on its face. To the middle of the back of the tiara are attached by soldering seven long backwardly directed teeth of silver, and at regular intervals along the upper borders are attached at the back nine slender silver sockets into which are fitted spiral wire springs, each bearing at its summit a silver artificial flower with small diamond shaped pendants. From each of the lower angles hangs a chain of pendants cut out of a thin sheet of silver. The tiara is worn on the top of the head and in front. Length (measured along the curve) 18·4 cm. greatest breadth 6·5 cm.

[Pd. 23. i. 03].

Catalogue No. 1220. (Plate I. fig. 3, *b*).

A somewhat similar ornament is worn high-days and holidays by the more civilized Sea-Dyak women; it was designed by the late F. R. O. Maxwell, Esq., formerly Resident of Sarawak, in response to a request made by some women to invent a new head-gear; for a photograph of a woman wearing this ornament see Ling Roth, l.c. vol. I. p. 4.

Malay brides in the Peninsula wear a rather different form of head-dress for the marriage ceremony. "The bride's hair is done up in a roll (*sanggul*) and this is surmounted with a headdress of artificial flowers (called *g'rak gĕmpa*), cut out of *p'rada kresek* ("crackling tinsel") and raised on five wires; her forehead is bound with a band or fillet of tinsel—gold-leaf (*p'rada Siam*) being used by the rich—which is called *tekan kundei*, and is carried round by the fringe of the hair (*gigi rambut*) down to the top of each ear (*pelipis*)." (Malay Magic, by W. W. Skeat, p. 378). One of these fillets was purchased by Mr. Skeat and is now in the Cambridge Anthropological Museum; it is decorated with a dragon design.

## III. Fillets and Head-Bands.

These are worn by both sexes of a good many tribes; but very few of them, if indeed any, can be rightly classed as orna-

ments; they are rather articles of dress since their principal purpose is to keep the hair in order and out of the eyes. Such are the "selapok" of the Sea-Dyaks and the "lavong" of the Kyans, plaited bands of rush or split rattan worn by men and the beaded head-bands worn by Kyan, Kenyah and Ukit women (cf. Ling Roth vol. II. p. 59). The Muruts of the Trusan district wear "strings of beads on the head to as many as six rows; these fit the contour of the head and if continued to the top of the head would form a cap; the hair is smoothed down and the end is brought up and passed through inside the strings of beads, forming a long loop a little to one side of the head" (O. F. Ricketts in "Sarawak Gazette" No. 347 p. 241). The beads composing these fillets are large yellow beads of glass and are highly prized. Murut children of both sexes wear a single string of differently coloured beads round the head, and the Murut women of the Lawas River, British N. Borneo wear a narrow fillet (two or three strings only) of differently coloured beads.

Brooke Low (cf. Ling-Roth l.c. vol. II. p. 58) notes that unmarried girls amongst the Sea-Dyaks wear chaplets of sweet-smelling berries; the chaplets are known as "balong."

1. Kenyah—head-rings.

*a*. Two narrow circles of split rattan, with strips of very finely split rattan, stained black, closely wound round in a vertical direction; on the outside, strips of a yellowish rush are interlaced with the vertical rattan strips, forming a simple pattern of oblique lines in double sets. At one point on each ring a piece of red cloth is wound round and stitched with string.

Diam. 17·5 cm. and 16 cm.; breadth 1·6 cm.

Brooke Low collection. From the Uma Kelap* of the Rejang River.

Catalogue No. 399 *a*. (Plate VIII. fig. 11).

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*Dr. C. Hose considers that these people belong to a division intermediate between the Kalamantan and Kyan-Kenyah divisions.

## IV. Head-Dress Ornaments.

1. Malay—"tajok."

*a.* A pair of ornaments worn on each side of the head-dress by bridegrooms at the marriage ceremony. Each ornament is a branched wire stalk covered with gold thread, to the branches are attached by five wire springs several artificial flowers cut out of gold paper, and a long chain of gold paper pendants hangs from one of the branches.

[Pd. xii. 02].

Catalogue No. 1215. (Plate I. fig. 3, *a*).

Similar ornaments though differently named are worn by bridegrooms in the Malay Peninsula. "His head is adorned with the *sigar*, a peculiar head-dress of red cloth arranged turbanwise, with a peak on the right-hand side, from which artificial flowers (*gunjei*) depend, . . . . . Besides this head-dress the bridegroom has a small bunch of artificial flowers (*sunting-sunting*) stuck behind each ear, whilst two similar bunches are stuck in the head-dress (one on the right and the other on the left)." (Malay Magic, by W. W. Skeat p. 379. Plate 12. Fig. 1).

2. Land Dyak—"sanggur mabok."

*a.* A tuft of aromatic leaves, "daun mabok" (*Acorus sp.*) bound on to a short wooden stick with a strip of red cloth. Sometimes worn in the head-dress by young men.

From Piching, Upper Sadong (Menggrat sub-tribe) [Pd. viij. 03].

Catalogue No. 1302.

Sea-Dyak women are fond of wearing flowers in their hair or head-dresses; men's caps are frequently decorated with the tail-feathers of hornbills or the quills of the argus pheasant. Ling-Roth figures (l. c. vol. II. p. 60) a remarkable conoidal cap, in the collection of the British Museum, carrying in the centre of the crown a plume 21 ins. high of small downy white feathers attached to slips of bamboo; a very similar cap, though unprovided with a plume, worn by the Land-Dyaks of Sambas, Dutch Borneo, has recently been presented to the Sarawak Museum by Mr. E. W. Byrde.

## *Ornaments worn in the ears.*

I. Earrings of metal.
II. Ear-drops of metal or stone, or single beads.
III. Earrings of brass and brass-wire.
IV. Ear-pendants of brass and brass-wire.
V. Ear-pendants of bead-work.
VI. Ear-pendants of horn and bone.
VII. Ear-pegs.
VIII. Ear-studs and ear-plugs.

### I. Earrings of Metal.

Under the first heading are included the heavy metal rings or coils worn by both sexes of the Ukit, Maloh, Tanjong, Kanowit, Kenyah, Kyan and allied tribes and by Sea-Dyak men; the weight of metal worn by the women of the first mentioned tribes is so great that the lobe of the ear in course of time becomes an immensely elongated loop, through which sometimes the head can actually be passed. Pictures of women with these elongated ear-lobes may be found in most books written on Borneo.* The ear is bored when the subject is two or three years old, in the case of a boy the lobe of the ear is extended by heavy weights to about two or three inches in length, i. e. nearly to the shoulder, when a lighter earring is substituted and the elongation is carried no further; with girls the extension of the ear-lobe is carried still further and the heavy earrings are worn throughout the lifetime; occasionally the loop breaks under the strain and though it may be stitched up again, the unequal length of the two loops is always regarded as a great disfigurement. Amongst Kyans and Kenyahs the ear-lobes must first be extended with tin weights

* e.g. Ling Roth. l.c. vol. I. pp. 25, 27, 28, vol II. p. 67 (the women figured on pp. 25, 27, 28 are Tanjongs not Kanowits); Beccari, "Nelle Foreste in Borneo" p. 425; Nieuwenhuis, "In Centraal Borneo" Pl. XIII. Pl. LVI; several plates in Furness, "Home Life of Borneo Head-Hunters." Nieuwenhuis (l.c.pl. II) also figures a Bukit man with two ear-studs and very heavy earrings such as are usually worn by women only but the ear-lobes in this subject are not much elongated.

as it is supposed that brass weights applied to children's ears will cause the ears to become diseased and to break under the strain. Amongst such tribes as the Tanjong and Tring it is not unusual for the ear, in addition to the large perforation, to be bored in three other places, viz. at the top of the ear-couch and at the proximal end of each limb of the loop formed by the extension of the large perforation in the ear lobe; a finely beaded string is sometimes wound through one or more of the three smaller perforations. Carl Bock gives (Head-Hunters of Borneo p. 186) the following measurements of the ear of a Tring woman:—"Total length, 7·1 inches; length of slit, 4·75 inches; distance between level of chin and bottom of ear 2·85 inches." Sea-Dyak men do not have the ear lobe very much elongated, perhaps to no more than one inch; the fashion of these earrings has been borrowed by this imitative tribe from the Kyans and Kenyahs.

Carl Bock (l.c. p. 67) gives the following account of the manufacture of these ornaments:—"Taking a long, straight piece of bamboo, the hollow of which was the same diameter as it was intended that the earrings should be, he fixed on the top of it the half of a cocoanut shell with a hole bored through in which the upper end of the cane was inserted, the whole forming a tube with a cup at the top. Wrapping the tube in a cloth, he melted the tin in a small ladle and poured it into the cocoanut cup, till the tube was filled. When the tin was cool he opened the bamboo tube and took out a long straight round rod of tin, which he then bent round a thick but smooth piece of wood, forming a ring with the ends not quite meeting." Other methods which are noted below are employed for rather different types of earrings.

1. Tanjong. Kanowit, Maloh and Sea-Dyak earrings ("ariek" and "langgu").

*A. Worn by men.*

i. Tanjong.

*a.* "ariek semera," one pair of tin earrings; each is a cylindrical length of tin twisted into one turn of a spiral.

Diameter of earring, 3 cm.; thickness of tin, 1 cm.

Brooke Low collection.
Catalogue No. 113.

ii. Kanowit.

*b.* "ariek spenge," similar to above but made of copper and twisted into two turns of a spiral.
Diameter of earring 1·9 cm; thickness of copper 0·4 cm.
Brooke Low collection.
Catalogue No. 112.

*c.* "ariek semera," one pair of tin earrings; each is a flattened penannular ring; these have been made from a cylindrical piece of tin cast in a bamboo mould, bent into an incomplete circle and then ground flat. They are very light.
Diameter of earring 3·1 cm.; thickness of tin 0·4 cm.
Brooke Low collection.
Catalogue No. 109.

iii. Maloh.

*d.* A pair of tin earrings entirely similar to No. 113.
Diameter of earring 2·5 cm.; thickness 0·7 cm.
Brooke Low collection.
Catalogue No. 106.

iv. Sea-Dyak.

*e.* "langgu, "one pair of earrings similar to the preceding but made of lead.
Diameter of earring 3·2 cm.; thickness 0·4 cm.
Brooke Low collection. From the Lamanak River.
Catalogue No. 606.

*f.* "langgu bangkang," similar to Nos. 113, 106.
Diameter of earring 2·8 cm.; thickness of tin 0·6 cm.
Brooke Low collection. From the Sakarang River
Catalogue No. 119.

*g.* "langgu temaga," a pair of earrings made from six pieces of stout brass wire coiled into a 6-ply and welded together, the whole twisted into one turn of a spiral.
Diameter of earring 2·6 cm.; thickness of brass-wire coil 0·7 cm.

Brooke Low collection. From the Saribas River
Catalogue No. 396. (Plate VIII fig. 14).

*h.* "langgu bangkang," a pair of penannular rings of cylindrical tin.

Diameter of earring 2·9 cm.; thickness of tin 0·5 cm.
Brooke Low collection. From the Sakarang River.
Catalogue No. 344.

Copper earrings of similar form to Nos. 113, 106 etc. known as "langgu tampang" are commonly worn by Sea-Dyaks.

*B. Worn by women.*

i. Kanowit.

*a.* "ariek spenge," twelve copper earrings; six are worn in each ear-lobe. Each earring is a cylindrical length of copper twisted into one turn of a spiral.

Diameter of earrings about 5·2 cm.; thickness of copper, about 0·6 cm.
Brooke Low collection.
Catalogue No. 111.

*b.* "ariek spenge," ten copper earrings, entirely similar to the preceding.

Brooke Low collection.
Catalogue No. 114. (Plate II. fig. 5, *e*, one example only).

*c.* "ariek pusong lasong," ten earrings similar to the preceding but made of brass.

Diameter of earrings about 3·5 cm.; thickness of brass 0·8 cm.
Brooke Low collection.
Catalogue No. 123.

*d.* "ariek geragum lasong," a pair of penannular rings of brass, very large and heavy, oval in section with a marked ridge on the outside. These have been cast in a clay mould.

Diameter of earring 5·8 cm.; thickness 1·8 cm. x 2·2 cm.; weight 10½ oz.
Brooke Low collection.
Catalogue No. 110. (Plate II. fig. 5, *b*).

ii. Tanjong.

*e.* "ariek lasong," a pair of large and heavy brass earrings, each is a cylindrical length of brass twisted up into one coil of a spiral.

Diameter of one ring 6·3 cm.; of another 6·1 cm.; thickness of brass 1·5 cm.; weight 8½ oz.

Brooke Low collection.

Catalogue No. 118. (Plate II. fig. 5, *a*).

*f.* "ariek semera," one pair of tin earrings similar to the preceding but made of tin.

Diameter of earring 4·3 cm.; thickness of tin 1·5 cm.; weight 5½ oz.

Brooke Low collection.

Catalogue No. 108. (Plate II. fig. 5, *d*).

2. Kyan—earrings (worn by men).

*a.* A pair of large but comparatively light earrings; each is in the form of a penannular ring of tin, circular in section. Diameter of earring 9·6 cm.; thickness of tin 0·8 cm.

Brooke Low collection. From the Long Gilat of the Mahakkam River.

Catalogue No. 115. (Plate II. fig. 5, *c*).

These large light earrings constitute a different type to the heavier twisted earrings described under heading 1. A very similar form is worn by the Milikin, a somewhat anomalous tribe living on the Gedong River, a tributary of the Sadong.

Ling-Roth (l. c. vol. II. p. 67) figures two ears, one with one earring like that described above suspended in the elongated ear-lobe, the other with two such earrings and an ear-peg; the legend under the figure is "Ears of Natives [? Dusuns] At Gunong Tabor or Panti River (E. Borneo) (After Mr. F. S. Marryat)." These are certainly not the ears of Dusuns, who do not wear ear-pegs or extend the ear-lobes, but of some Kyan or allied tribe. The Panti River it may be noted is not in a Dusun district.

On pp. 31 and 32 of vol. I. of his book on Borneo natives Ling Roth also figures after Lieut. F. S. Marryat some Saghais from S. E. Borneo with pendulous ear lobes in which hang

large penannular earrings of (?)tin. The sketches are rather fanciful and I suspect that the Saghai are only a Kyan sub-tribe, comparable to the Long Wai, etc.

A. W. Nieuwenhuis in "In Centraal Borneo" figures (Pl. XCIII) a Long Gilat girl wearing earrings like No. 115 but quite twice their diameter; in the same work are also figured (Pl. LXII and Pl. LXXXVI) Kyan boys at Bloeöe with penannular earrings of this type. Carl Bock (l. c. Pl. 10) figures a Long Wahou man with similar earrings.

3. Bakatan and Sea-Dyak—ear-ornaments of tin (worn by men).

These ornaments are not rings, but they are nevertheless included under the heading I. as they are made from cylindrical lengths of tin cast in a bamboo mould; the tin is not bent into a ring nor into one turn of a spiral, but into a long loop, the ends of which are curled up to form small flat spirals, whilst other ornamentations may be added. A remarkable gold ornament found in August 1902 by gold-seekers in river gravel at Pankalan Ampat, Sarawak river, is figured on Plate III. fig. 6, *d*, for purposes of comparison. Whether this ornament is indeed an ear-pendant is not very certain, but it is singularly like the Bakatan ear-ornaments; it is possibly of Hindoo origin, and certainly not a product of indigenous handicraft.

i. Bakatan.

*a*. "urut" a pair of tin ear-ornaments, made from a cylindrical length of tin bent into an oval loop, the end of the loops rolled up outwards to form small flat spirals.

Length in a straight line 4·9 cm.

Brooke Low collection. Figured by Ling Roth (l. c. vol. II. p. 68).

Catalogue No. 124. (Plate III. fig. 6, *c*).

*b*. "urut," somewhat similar ornaments, but the tin has been ground flat, the loop is more elongated and the ends have been turned up outwards to form S-shaped figures.

Length in a straight line 6 cm.

Brooke Low collection.

Catalogue No. 345. (Plate III. fig. 6, *b*).

ii. Sea-Dyak.

*c.* "langgu bangkang," a pair of somewhat similar ornaments; the tin has been ground flat and bent into a loop narrower at the top than at the bottom, the ends of the loops have been twisted inwards to form flat hooks and inwardly projecting smaller hooks have been cut out from the inside of the loops.

Length in a straight line 7·1 cm.

Brooke Low collection. Figured by Ling Roth (l. c. vol. II. p 68).

Catalogue No. 120. (Plate III. fig 6, *a*).

This type of ornament has been borrowed by the Sea-Dyaks from the Bakatans; it is but rarely met with.

II. Ear-Drops of Metal or Stone or Single Beads.

Generally speaking these are peg-top shaped pendants of tin and brass with spiral suspensory hooks; one specimen (No. 116) is made of serpentine with a suspensory hook of deer's horn; those worn by women are of very considerable weight. The Long Gilat dragon ear-pendants are of quite a different type and are classified under a separate sub-heading.

1. Kanowit, Tanjong, Bakatan, Kyan, and Sea-Dyak ear-drops.

i. Kanowit.

*a.* "buah bitok lasong," a pair of brass ear-drops worn by women. Each is a large pointed ovoid (peg-top shaped) with a slender neck and spiral suspensory hook; the upper half of the ornament is "stepped."

Length 8·1 cm.; diameter 3·2 cm.; weight 7½ oz.

Brooke Low collection.

Catalogue No. 121. (Plate III. fig. 7, *a*).

*b.* "buah livong lasong," a pair of brass ear-drops worn by women. Very similar to the preceding, but smaller, the lower end less pointed, the neck very stout.

Length 7 cm.; diameter 2·3 cm.; weight 3¼ oz.

Brooke Low collection.

Catalogue No. 104. (Plate III. fig 7, *a*).

*c.* "buah belimbien," a pair of brass ear-drops worn by women. Each is a large hexahedron, with a knob at the lower end and a spiral suspensory hook; the neck is marked by a ridge which is incised with lines so as to simulate a circle of twisted fibre. The shape of the ear-ornaments is suggestive of the "belimbing" fruit (*Connaropsis monophylla*, Planch.), hence their name.

Length 10 cm.; diameter 3·2 cm.; weight 8½ oz.
Brooke Low collection.
Catalogue No. 125. (Plate III. fig 7, *b*).

ii. Tanjong.

*d.* "isang lasong," a pair of brass ear-drops worn by women. Each is a small ovoid, with eight flat faces, the lower end pointed, neck short, a spiral suspensory hook.

Length 6·3 cm.; diameter 2·4 cm.; weight 3 oz. 10 dr.
Brooke Low collection.
Catalogue No. 107. (Plate III. fig 7, *c*).

*e.* "buah livong semera," a pair of tin ear-drops worn by men. Each is a small pointed ovoid, a small knob at lower end, a slender neck and spiral suspensory hook.

Length 5·5 cm.; diameter 2 cm.; weight 1½ oz.
Brooke Low collection. Figured by Ling Roth (l. c. vol. II. p. 68).
Catalogue No. 117.

*f.* "lungin," * a pair of tin ear-drops worn by women. They are almost spherical, an ornamental knob at the lower end, neck ornamental with notches and a wedge pattern cut in relief, spiral suspensory hook.

Length 6·8 cm.; diameter 3 cm.; weight 4½ oz.
Brooke Low collection.
Catalogue No. 105.

iii. Bakatan.

*g.* "lungin," a pair of brass ear-drops worn by women. Peg-top shaped, upper part "stepped," neck very stout and short, spiral suspensory hook.

* This is the Sea-Dyak name.

Length 7 cm.; diameter 3·5 cm.; weight 9 oz.
Brooke Low collection.
Catalogue No. 103. (Plate III. fig 7, *e*).

iv. Kyan.

*h.* "buah livong batu jela," a pair of large ear-drops of serpentine, worn by women. They are pointed ovoids, a large hole is bored into the top of each and into it is let a spiral suspensory hook cut out of deer's horn, and secured with a luting of dammar. The two hooks are not symmetrical, one being more coiled than the other.

Length 9 cm. and 9·5 cm.; diameter 3·6 cm. weight 3 oz.
Brooke Low collection.
Catalogue No. 116. (Plate III. fig 7, *f*).

v. Sea-Dyak.

"langgu lungin," a pair of ear-drops worn by men. Each is a pale blue bead 1·3 cm. in diameter. Through the bead is passed a piece of lead that at one end is worked into an ornamental suspensory hook, at the other into a large stud.
[Pd. x. 04]. Catalogue No. 1458.

2. Kyan—ear pendants.

*a.* A pair of brass ear pendants worn by chiefs. They have been cast in the form of a dragon curved on itself in an S-shaped figure and are of unusual weight.

Weight 7¼ oz. From the Long Gilat, Mahakkam River.
Brooke Low collection. Figured by Ling Roth (l. c. vol. II p. 68).
Catalogue No. 122. (Plate III. fig 6, *e*).

A Sea-Dyak chief from the Rejang River suggested to me that these were not ear-ornaments but suspensory hooks for gongs, some Ukits however quite recently confirmed their use as ear-ornaments and I have no reason to doubt the accuracy of Brooke Low's original label.

## III. Earrings of Brass Wire.

These are series of penannular graduated rings of flattened brass wire worn round the margin of the ear conch by Sea-

Dyak men only amongst the Sarawak tribes. When the ornaments are discarded, as during a time of mourning, the perforations in the ear-cartilage are kept open with little plugs of wood. The fashion is not nearly so widespread as it was some years ago. The Dusuns of Mount Dulit [?—Dalit] * according to Witti (quoted by Ling Roth l. c. vol. II. p. 71) "have earrings which dangle one below another, all three of brass wire coiled into a spiral. The lowermost is fixed into the ear-lobe and is 2½ inches in diameter; the two smaller ones are fixed into the margin of the ear." This is the only reference that I can find to this type of ornament amongst the Dusuns and I have seen no specimens. The Muruts according to St. John "wear many rings of lead up the rim of the ear," and the Land-Dyaks of Sauh, Serambo and Singgi according to Denison wear earrings of "wire twisted round in a coil and hanging from the ear by single bend of the same," they are known as *shibu*.

1. Sea-Dyak—"grunjong."

There are three varieties of the "grunjong":—*A*. "grunjong tampil" or "grunjong ikat;" *B*. "grunjong buri;" *C*. "grunjong." The former are series of penannular rings, thirty to forty or fifty in number, strung closely together on a double thread; only a few holes are bored in the ear to hold these rings, in fact one hole at the top of the ear and one in the lobe is quite enough, the intervening rings of the series merely gripping the ear margin. The "grunjong buri" are separate penannular brass wire rings on which are strung ground-down cowry shells. From six to twenty can be worn on one ear; since the rings are not connected with each other, a separate hole in the ear-margin has to be bored for each ring. The Ulu Ai and Engkari Dyaks are said to be the only people who wear the "grunjong buri." The "grunjong" pure and simple are merely separate penannular rings of brass wire or tin worn like the "grunjong buri." Figures of Sea-Dyaks wearing "grunjong" are given by Ling Roth l.c. vol. I. pp. 3, 5, 11.

* This cannot be the Mt. Dulit in the Baram District.

*A.* "grunjong tampil" or "grunjong ikat."

*a.* A pair of ear-ornaments; each one composed of a series of thirty-nine penannular rings of brass wire, filed flat on the inner side. They are graduated in size, the uppermost ring of each series being 2·1 cm. in diameter, the lowest 4·4 cm. The ends of the rings are turned back and through the loops so formed a double string is threaded; the rings are all threaded close together—being only separated from each other by knots in the string—so that each one overlaps the next below it.

Brooke Low collection. From the Lamanak River.

Catalogue No. 131.

*b.* Very similar to the preceding, but with only thirty-five rings, the smallest 1·8 cm. in diameter, the largest 5·1 cm. The last and largest ring is flat on both sides and to notches in its lower border are attached by small links of brass wire a row of twenty flat diamond-shaped brass pendants; the central pendant is bifurcated and to it is attached a double chain of diamond-shaped pendants. To every third ring of the series is attached by a sliding wire link a diamond-shaped pendant. The rings are not only joined together by a doubled string passing through the loops formed by the turned-back ends of the rings with a knot between each ring, but also by the string passing back outside the loops with a hitch round every ring.

Brooke Low collection. From the Sakarang River.

Catalogue No. 598. (Plate IV. fig. 8, *b*).

*c.* Very similar to the last, but with forty-three rings, the smallest 1·7 cm. in diameter, the largest 4·2 cm. Eleven flat diamond-shaped pendants of brass are attached by sliding links to the ring at irregular intervals; the last ring bears only one pendant not a row of pendants.

Brooke Low collection. From the Lamanak River.

Catalogue No. 599.

Ling Roth (l.c. vol. II. p. 65) figures a very similar pair of "grunjong" in the Edinburgh Museum.

*B.* "grunjong buri." (Ulu Ai or Engkari).

*d.* A pair of ear-ornaments; each ornament composed of a series of fifteen separate rings of flattered brass wire, graduat-

ed in size, the smallest being 2·3 cm. in diameter, the largest 5·4 cm. On to each ring is threaded a row of ground-down cowry shells and a small red bead at each end of the row is fastened by fine wire to the ring to prevent the shells from sliding about.

Brooke Low collection.
Catalogue No. 593. (Plate IV. fig. 8, *c*).

*e*. Similar, but only eleven rings, diameter of smallest 3·1 cm., of largest 5 cm. Two brass pendants on the last ring of the series.

Brooke Low collection.
Catalogue No. 594.

*f*. Similar, fourteen rings, diameter of smallest 2·1 cm., of largest 4·4 cm. A flat diamond-shaped brass pendant attached to each ring.

Brooke Low collection.
Catalogue No. 595.

*g*. Similar, twelve rings, diameter of smallest 2·2 cm., of largest 3·8 cm. No brass pendants.

Brooke Low collection.
Catalogue No. 596.

*h*. Similar, five rings, diameter of smallest 2·1 cm., of largest 4·3 cm. No brass pendants.

Brooke Low collection.
Catalogue No. 597.

## IV. Ear Pendants of Brass and Brass Wire.

1. Land-Dyak—"anteng."

*a*. A pair of ear pendants worn by men in festal dances. Each is a thin disc of brass; a circular hole has been cut very excentrically in this disc, so that at one point only a narrow strip of brass is left; this has been split, leaving two overlapping strips which clip the ear-lobe. Several small holes are punched in the border of the disc and a fine silver-wire plait attached to these nearly encircles the disc, just stopping short of the ear-clips.

From the Menggrats of Piching, Upper Sadong River [Pd. viii. 03].

Catalogue No. 1306. (Plate II. fig. 5, *f*).

Small silver coins of the Netherlands India currency are frequently attached by silver wire chains to the plait encircling these discs. I was informed that the ornaments are almost obsolete now.

2. Sea-Dyak—"langgu tingga."

*a*. A pair of ear-pendants worn by men. Each consists of twelve graduated penannular rings of brass wire filed flat on the inside and of two broad flat penannular bands cut from a sheet of brass. The ends of all these are joined together by a thick luting of dammar; the smallest brass wire ring tops the series, the flat bands are terminal; all are further held together by two transverse brass wire clips. The front faces of the terminal brass bands are adorned with a simple wedge pattern, incised, known as "puchok rebong" *i.e.* shoots of bamboo; their lower borders are notched and to the teeth of the lower one are attached by brass wire links twenty-seven flat pointed pendants of brass, and to the central pendant of the row is attached a flat notched and bifurcated pendant from which hang two short chains of pointed pendants.

Length 9·5 cm.; diameter of lower flat band 7·4 cm.

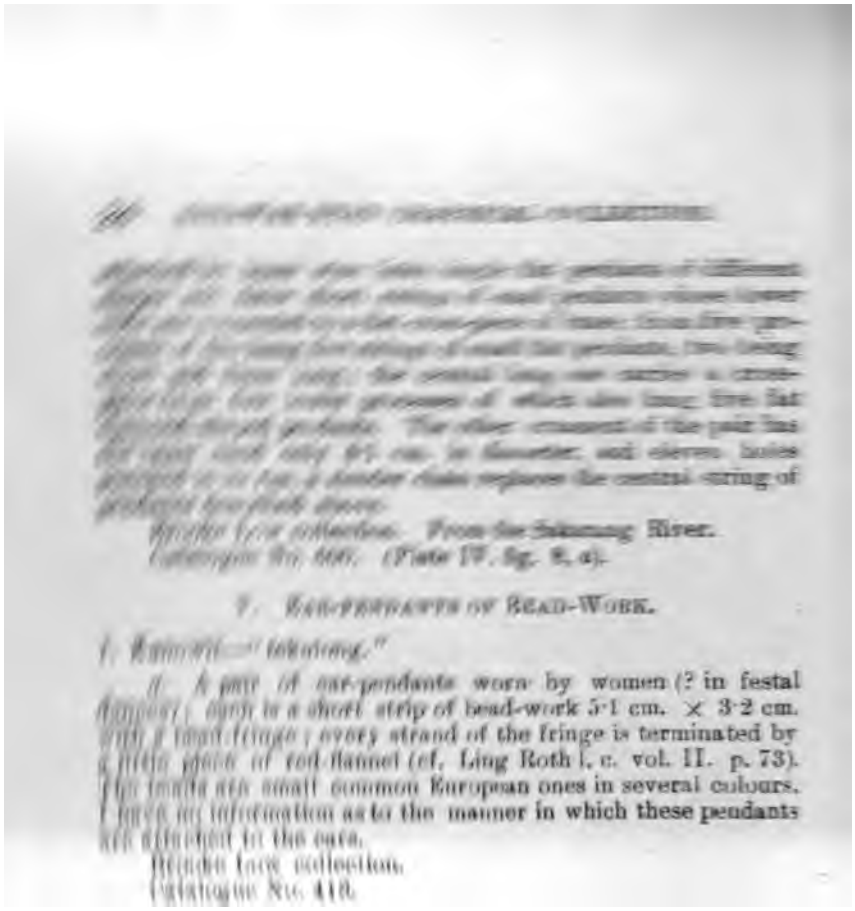
Brooke Low collection. From the Sakarang River.

Catalogue No. 600 *a*.

This is worn clipped to the ear-lobe, but it is a full-dress ornament and not much affected except by young dandies; according to Brooke Low they are sometimes worn in addition to the "grunjong." There is a very good figure of a "langgu tingga" in Ling Roth's book (l.c. vol. II. p. 66).

3. Sea-Dyak "kenawieng."

*a*. A pair of ear-pendants worn by men. Each is a flat brass penannular band from which hang chains of flat pendants, but the two are not quite identical. The ends of the brass penannular bands are bound with cloth; one band is 5 cm. in diameter, twenty-one holes are punched in its rim and two circular lines are incised on its front face; to seven of the holes are



7. Ear-pendants of Bead-Work.

*b.* A pair of ear-pendants worn by women (? in festal dances), each in a short strip of bead-work 5·1 cm. × 3·2 cm. with a small fringe; every strand of the fringe is terminated by a little piece of red flannel (*cf.* Ling Roth l. c. vol. II. p. 73). The beads are small common European ones in several colours. I have no information as to the manner in which these pendants are attached to the ears.

Brooke Low collection.
Catalogue No. 418.

## VI. Ear-pendants of Horn.

[illegible] tribes Leppu Tau, Tepu, [illegible] wear an ear-pendant, such as that [illegible], the other ear may carry a different [illegible] or be devoid of ornament altogether: the [illegible] are worn in pairs.

[illegible] solid horn, slightly curved and carved [illegible] is supposed to represent [illegible] suspended from an ear-hole [illegible]

[illegible]

by one of the hooks or else by a beaded loop of string. 5·0 cm. 4·5 cm.

From the Leppu Tau of the Batang Kyan River, Dutch Borneo.

R. S. Douglas, Esq. [P. 28. iii. 00].

Catalogue No. 1068 *a* (Plate III. fig. 6, *f*).

*b*. A similar but smaller specimen 4·5 cm. × 4·2 cm. From the same locality as the above.

R. S. Douglas Esq. [P. 28. iii. 00].

Catalogue No. 1068 *b*.

## VII. Ear-pegs.

Ear-pegs (*udang*) are worn by men of the Ukit, Punan, Kanowit, Tanjong, Skapan, Kenyah, Kyan and allied tribes; some Sea-Dyaks also have quite recently adopted the same ornament. The *udang* are either the canines of the clouded leopard, *Felis nebulosa* or imitations of these, carved from the casque of the solid-billed hornbill, *Rhinoplax vigil*. Amongst the Kyans and Kenyahs the leopard's teeth can only be worn by men who have taken heads and the pegs made from the hornbill casque only by chiefs. The pegs are thrust through large holes, punched with a sharpened section of bamboo, in the upper part of the ear-conch and are usually worn with the points directed downwards and slightly outwards; as a rule only one is worn in each ear, but Brooke Low (cf. Ling Roth l.c. vol. II. p. 69) states that the Uma Lesong wear two teeth in each ear, the upper one pointing upwards, the lower one downwards. Figures of natives wearing ear-pegs may be found in Ling Roth's book) vol. I. pp. 12, 14, 19, 23). When these ornaments are not in use* the lobes in the ears are filled with a plug of wood or a pledget of cloth or tobacco.

* A Kenyah chief of the Baram River, Tama Bulan by name, when on a visit to Kuching some years ago, never wore his ear-pegs; when asked the reason, he replied that the evil spirits would recognise him by his ear-pegs and seeing him so far from his home would hasten there themselves and wreak their wicked will on all his people and belongings; without his ear-pegs he was practically disguised or at least unrecognisable.

1. Skapan—"udang."

*a.* One pair of canines of the clouded leopard, ***Felis nebulosa***. The root of each tooth is transversely bored and a bead work tassel is usually attached in this position.

Length (in a straight line) 7·7 cm. and 7·6 cm.
Brooke Low collection.
Catalogue No 128. (Plate IV. fig. 9, *c*).

Ling Roth (l.c. vol. IV. p. 68) figures a pair of similar ornaments from Kapit, Rejang River; but each tooth is provided with a bead-work tassel and they are joined together by a beaded string, which, when the pegs are in position, passes round the back of the wearer's head; on the same page are also figured a pair of teeth pegs with gutta knobs in the collection of Dr. C. Hose. The tusk decorated with hair and cloth figured at the right-hand bottom corner of the same page with the legend "Ear peg (?) (Brooke Low collection)" is a sword-belt-toggle and not an ear ornament.

2. Punan—"udang tandok kleho."

*a.* One pair of ear-pegs made of buffalo horn and shaped to imitate a leopard's canines; the trenchant inner edge of the tooth and the distinction between the part of the tooth above the gum and the part below is imitated with remarkable fidelity. The "root" of each peg is transversely bored.

Length (in a straight line) 7·1 cm. and 6·9 cm.
Brooke Low collection.
Catalogue No 130.

3. Kyan—"udang betelu" (or "beto)."

*a.* One pair of ear-pegs worn by chiefs, carved from the casque of the hornbill *Rhinoplax vigil* and shaped to imitate the canines of the clouded leopard; the part of the ornament corresponding to the root of the tooth is expanded, flattened and fretted into a sort of spiral pattern.

Length (in a straight line) 9·1 cm.
Brooke Low collection. Figured by Ling Roth (l.c. vol. IV. p. 68).
Catalogue No. 129.

*b.* A very similar pair but the expanded head is rather differently shaped.

Length (in a straight line) 8·5 cm.

Brooke Low collection. Formerly the property of Laki Bato a distinguished chief in the Rejang River.

Catalogue No 605. (Plate IV. fig. 9, *b*).

4. Kenyah—"bula wai."

One pair of ear-pegs very similar to the two preceding examples. The "root" is carved into a pointed projection and a flat spiral with horns; they are of a beautiful crimson, the natural colour of the hornbill's casque; the colour has faded from the two Kyan pairs.

Length (in a straight line) 9 cm. and 8·7 cm.

Acquired by exchange from a Sea-Dyak ii. 02.

Catalogue No 1152. (Plate IV. fig 9, *a*).

## VIII. Ear-plugs and Studs.

Ear-plugs are worn by Long Wai and Tring men, by Murut men and women, and by Brunei Malay, Sea-Dyak, Tanjong, Punan, and Milano women; they are worn in the distended ear-lobe. Ling Roth (l. c. vol. II. p. 69) figures a pair of handsome silver ear-studs known as *krebu* worn by Bakong women, the highly ornamental head of the stud can be screwed off the shank which is provided with a real thread of metal; there are no specimens of this type of ornament in the Sarawak Museum.

1. Murut—"oul buluh."

*a.* A pair of ear-plugs worn by men, in the lobe of the ear; each is a transverse section of bamboo 2 cm. in diameter, 1 cm. deep; a circular piece of looking glass is fitted into one end of the section.

From the Trusan River, near the coast.

Dr. G. D. Haviland coll.

Catalogue No. 745. (Plate VIII. fig. 4).

Somewhat similar ear-plugs are said to be worn by the men of some Land-Dyak sub-tribes.

**2. Murut—"oul gading."**

*a.* A pair of ear-plugs worn by richer men. Each is a thick disc of ivory with a broadly grooved rim; the front diameter of the disc is greater than the back diameter. Through the centre of the disc projects a wire; and on this is threaded a conical cornelian bead with flat sides, topped by a spherical red bead; the wire is secured at the back by being passed through four holes bored obliquely from the back of the ivory disc through to the rim; a thick brass wire loop is lashed with thin wire across the back of the disc, the ends of the loop projecting beyond the border of the disc, and being slightly turned up prevent the ornament from falling out of the ear-lobe.

Diam. 4·3 cm. depth 1·1 cm.

From the Bah country, Trusan River.

O. F. Ricketts, Esq. [P. 1889].

Catalogue No. 753. (Plate IV. fig. 9, *e*).

*b.* A similar pair but more carefully made; the spherical bead is of cornelian.

Diam. 4·2 cm.; depth 1·1. cm.

From Dalit in the Bah country, Trusan River.

Dr. G. D. Haviland coll.

Catalogue No. 744.

St. John (Ling Roth l. c. p. 70) states that both the men and women of the Adang Murut sub-tribe wear ear-plugs.

3. Tanjong—"orang."

*a.* A pair of wooden ear-plugs worn by women. Each is a thick disc of soft white wood, unornamented in any way. The diameter of the front face of each disc is 5·5 cm., of the back 5 cm.; the depth is 2·5 cm.

[Pd. x. 04].

Catalogue No. 1460.

*b.* Similar to the preceding but smaller and unequal in size. The front face of each is decorated with a star pattern painted in the wood with a black resin, on the back are painted two crossed lines with a dot in each of the four angles formed.

i. Diam. of front 4·5 cm.; of back 3·7 cm.; thickness 2·5 cm.
ii. „ „ „ 4·3 cm.; „ „ 3·5 cm.; „ 2·5 cm.

[Pd. x. 04].
Catalogue No. 1461.
Carl Bock (l. c. Pl. 16) figures a Punan women of the Kotei River wearing a pair of wooden ear-plugs very like the Tanjong specimens.

4. Brunei Malay and Kadyan—"subang."

i. Malay.

*a.* A pair of ear-plugs worn by women. Each is a cylindrical piece of soft wood expanded at one end to form an eight-pointed star in the centre of which several bits of glass are set; the whole is covered with gold paper.
Height 4·5 cm.; diam. 2 cm.
Mr. Steffen [P. 1892].
Catalogue No. 791. (Plate IV. fig. 9, *d*).
A somewhat similar pair of ornaments, but made of silver washed with gold is figured by Ling Roth (l. c. vol. II. p. 69); they are worn by Milanos. Upper-class Brunei women wear silver or even gold *subang*, but the lower-class women are sometimes content with a European cotton-reel with one end cut off and not ornamented in any way.

ii. Kadyan.

*b.* A pair of ebony ear-plugs worn by women formerly; almost cylindrical with expanded top; the top and bottom are carved with a geometrical pattern into which pieces of tinsel were let, but most of these have fallen out; the sides are decorated with an incised wedge pattern.
Height 2·1 cm.; diam. at top 2·2 cm. at bottom 1·6 cm.
A. B. Ward, Esq. [P. 30. iv. 04].
Catalogue No. 1415. (Plate VIII. fig. 3).

*c.* A pair of ebony ear-plugs very similar to the above, but smaller in diameter, and the decorative patterns different; the interstices of the patterns have been filled in with lime so that the black pattern stands out in relief against a white background.
Height 2 cm.; diam. at top 2 cm. at bottom 1·3 cm.
A. B. Ward, Esq. [P. 30. iv. 04].
Catalogue No. 1416. (Plate VIII. fig. 2).

These ornaments amongst the Kadyans are now entirely superseded by cheap jewelry of European or Chinese manufacture.

5. Sea-Dyak—"tensa pending."

*a. tensa pinding temaga*; a pair of leaden studs worn in the lobe of the ear by women; the head of the stud is a disc with its border deeply and narrowly notched, into the centre is let a small disc of brass; there is a short leaden shank and a small discoidal base.

Height 5 cm.; diam. of head of stud 4·1 cm.

Brooke Low collection. Figured by Ling Roth (l. c. vol. II. p. 68).

Catalogue No. 126. (Plate IV. fig. 9, *f*).

*b. tensa pending engkraju*; a pair of leaden studs similar to the preceding, except that a disc of copper is let into the centre of the head of the stud.

Height 5 cm.; diam of head of the stud 4·3 cm.

Brooke Low collection.

Catalogue No. 127.

Sea-Dyak women also wear studs like the *krebu* worn by Bakong women.

The Long Wai ear-plugs of gutta figured by Ling Roth (l. c. vol. II. p. 68) are probably worn by men in the top of the ear conch in place of the ear-pegs. I can pronounce no opinion on the ear lobe plug from Bejaju, S. E. Borneo, figured on the same page.

## *Ornaments worn on the neck.*

I. Rattan, reed and seed necklets.
II. Teeth necklets.
III. Bead necklets.
IV. Brass-wire necklets.

### I. Rattan and Reed Necklets.

1. Dusun—"tagul."

*a.* Necklet of rattan worn by women; it is composed of two separate pieces of split rattan, round which are closely

wound strips of very finely split rattan stained black; on the outside of one piece strips of finely split rattan, stained red, are interwoven between the vertical black strips forming a pattern of alternate wedges, on the outside of the other these interwoven strips are unstained. The necklet is fastened by a piece of wood at the end of a string buttoned into a string loop.

From Kiou, British N. Borneo.

Drs. G. D. and H. A. Haviland coll. [P. v. 92].

Catalogue No. 773.

Whitehead (l. c. Plate opposite p. 108. fig. XIII) figures a somewhat similar specimen.

Ling Roth (l.c. p. vol. II. p. 73.) figures a Sea-Dyak necklace of sections of reed strung on European thread, the ends joined by two loops of lead wire; the necklace is in the collection of Rev. F. W. Leggatt. Necklets of plaited vegetable fibre, like the armlets and leglets of the same material (*vide infra*) do not seem to be worn by any tribe.

Kalabit youths when visiting a strange country wear a necklet of seeds as a charm against sickness and evil spirits.

## II. Teeth Necklets.

These are worn only by Land-Dyak men, at festivals and formerly when on the war-path or when visiting strange districts. The most valued specimens are composed entirely of the canines of *Felis nebulosa* strung on rattan. They are worth about or over $50; more commonly the canines of the honey-bear *Ursus malayanus* are employed with some small pig's tusks intermixed, but even these are very expensive. The Sarawak Museum specimen *a*, described below, is the only one of its kind known to me. The necklets are known as *bobot* and are worn with the points of the teeth directed upwards (cf. Beccari, Nelle Foreste in Borneo, Figs. 24 and 27).

1 .Land-Dyak—"bobot."

*a*. Forty silver imitation teeth and six canine teeth of a small carnivore (*? Felis bengalensis*) strung on a double rattan thread; the silver "teeth" are hollow and filled with dammar,

they are shaped like the canines of *Felis nebulosa*, the largest ones (6 cm. in length) are in the middle and decrease in size towards the ends; at the ends are situated the six small canine teeth. Between each "tooth" occurs a dark blue glass bead, cylindrical in shape and about 7 mm. in diameter, they are strung on one of the threads traversing the "teeth" and serve to keep them at equal distances apart. In order to conceal the threading of the "teeth" and beads, a plaited band of split rattan is laid over the bases of the "teeth" in front of the necklet and three strips of split rattan serve the same purpose at the back; attached by wire to the plaited band is a row of small oval pieces of silver. The whole necklet is bent into an oval and is fastened by ordinary string.

From Selakau near Lundu, Sarawak. [Pd. v. 02).

Catalogue No. 1156. (Plate II. fig. 4, *a*).

*b*. Necklet of sixty-nine teeth strung on a double rattan thread; sixteen of the teeth are human molars, premolars and incisors, the remainder are the canines of the honey-bear, with one or two very small pig's tusks intermixed. The teeth are all strung close together and to keep all taut the double rattan thread is lashed by a long coil of split rattan to a strip of split rattan laid over the bases of the teeth. To conceal the threading of the teeth a strip of brass is laid over the bases of the teeth on the opposite side to the split rattan strip and is secured with lashings of wire and split rattan. The whole necklet is bent into a circle of 20·7 cm. diameter.

From Krokong, Upper Sarawak.

Catalogue No. 1445. E. W. Byrde Esq. [P. viii. 04].

References to similar necklets will be found in Ling Roth's work (l.c. vol. II. p. 73).

These necklets are considered of such value that the owners are prepared to offer them in exchange for their lives if threatened by either supernatural or human enemies. The beads which are interspersed with the canines often have powerful magical properties.

## III. Bead Necklets.

Bead necklets are worn by both sexes of every tribe.

The beads from which the necklets and girdles in the Sarawak Museum are made may be grouped under eleven headings, and in order to avoid much circumlocution and repetition in the descriptions of the necklets and girdles given below, the component beads will be referred to, as a rule, merely by their respective group numbers :—

*Native-made beads.*

Type 1. Quartz crystals, bored.*

Type 2. Cornelian and agate pebbles, ground and bored.*

Type 3. Columellæ of shells and shell discs.

Type 4. Brass wire wound into the shape of a long bead.†

*Imported beads.*

Type 5. Small glass and glazed clay beads of different colours, ranging in size from 2 mm. in diameter to 4 mm.; of quite modern European manufacture and importation.

Type 6. Large glass beads of different colours, generally spherical but sometimes with flat faces, sometimes cylindrical. Some of these are antique.

Type 7. Modern glass beads of Venetian make, ovoid in shape, of different colours with crude designs in other colours roughly painted over them. About 5 mm. in diam.

Type 8. Small discoid glazed clay beads, yellow or pale blue in colour, known as *labang*. Antique specimens are valued at $1 apiece. About 4·8 mm. in diam. Supposed to be of Venetian origin.

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* Some of these beads are bored locally by the pump-drill.

† Made by the Malohs (cf. Ling Roth l.c. Vol. II. p. 73); there are no specimens in the Sarawak Museum.

Type 9. Spherical glazed clay beads of different colours, ranging in size from 6 mm. in diam. to 13 mm. Some specimens are antique and are very highly valued. They * are supposed to be of Venetian origin.

Type 10. Cylindrical Venetian beads of glazed clay or glass, generally black or dark blue in colour, with four rosettes painted in different colours though generally in red and yellow on them. (Plate VIII. fig. 5). Some specimens are striped longitudinally, others have sinuous lines on them. The generic term for these beads is *lukut*, but almost every specimen has a distinctive name, such as *mata tiong* (mynah's eye), *lukut puni* (pigeon bead), *lukut telingan* (hornbill bead), *lukut kelum bla* (striped bead). Antique specimens have high values placed on them, $10 is quite a usual price. The usual size is 15 mm. in length by 5 mm. in diam.

Type 11. Similar to the above but much larger and generally spherical. Diam. about 20 mm. Antique specimens are valued very highly; one form known as *lukut sekala* is worth as much as $100 amongst the Kyans.

(Plate VIII. figs. 6, 7, 8, 9).

The owners of antique beads of Types 9, 10, 11 consider them to be of vast antiquity, and, in many cases, of supernatural origin; they have been handed down from one generation to another so that the date of their importation is now buried in some obscurity. Tribes other than the Kyans do not attach so much value or importance to these antique beads, and any in the possession of Sea-Dyaks have probably been looted from Kyans. Kyans have definite names and definite values for every form of antique bead, and they form part of their currency.

Antique examples of Type 10 are better finished and have a larger bore than modern imitations and the Kyans are wonderfully acute in distinguishing between the two.

*Weathered specimens exhibit a spiral structure; apparently the clay when wet was twisted in short lengths round a rod, then shaped roughly into the form of a bead and baked; the final polishing and shaping taking place after the clay was fired.

1. Murut—"bani."

*a.* Necklet worn by women; it is composed of nine cornelian pebbles roughly ground into flat ovals and of twenty-nine beads of Type 9, yellow, red, (*dara brak*, pig's blood), pale blue (*bunan*) and black with coloured spots. All are threaded on a double thread, the cornelian pebbles are perforated longitudinally by two holes through which the two strings pass. The diameter of the beads ranges from 13 mm. to 9 mm.

From the Trusan district. [Pd. 2. xii. 02].

Catalogue No. 1195. (Plate II. fig. 4, *b*).

Ling Roth (l.c. Vol. I. p. 213) figures a portion of an Undup (Sea-Dyak) cornelian and bead necklace.

2. Land-Dyak—"pangia."

These are necklets worn by the married women and female witch-doctors (*borich*) of Upper Sarawak. Charms, that are supposed to be effective in healing disease, in inducing good harvests, etc., are always attached to the necklets. They are worn by married women at festivals, for three months following childbirth, except during the first week, and for three months after the death of a husband; by the *borich* they are worn almost constantly, invariably at festivals and magic ceremonies. (For an account of the Land-Dyak witch-doctors cf. Ling Roth Vol. I. p. 259 et. seq). About 50% of the women in the village of Krokong, Upper Sarawak, are *borich*.

*a.* Necklet consisting of eight rows of differently coloured beads (*likich*) of Type 5, 3 to 4 mm. in diameter, strung on finely split rattan threads; the rows are bound together side by side by ten transverse loopings of brass wire so as to form a flat band of concentric rows; the free ends of the rattan strings are made fast to a row of five Chinese *cash* bound together by string (*toli*), these lie flat on the back of the neck of the wearer. The differently coloured beads are arranged in thirteen definite transverse divisions; starting from one end the arrangement of colours is:—blue and black mixed (*songot*), yellow (*siah*), red (*biliah*), opaque white (*morpu*), blue and black mixed, opaque white, transparent white (*tagi*), with a few

green and red beads at each end of the division, opaque white, blue and black mixed, opaque white, red, yellow, blue and black mixed. The outermost *row* however is made up of rather different beads with flat faces, pink, white and pale green in colours, and they are not arranged in any definite order. The brass wire loopings mark the junctions of all the divisions except the junction between the blue, black and yellow divisions. The arrangement and number of colours is said to vary with every village, and the number of bead rows varies from five to ten. From the band of Chinese cash depends a string loop on which are strung some charms; these are as follows:—

1. An incisor of a porcupine (*bidiak*).
2. A canine of a wild cat.
3. A claw of the scaly manis (*oomb*).
4. A claw of the Brahminy kite (*libau*).
5. A ring of coconut shell (*boru butan*).
6. Five small brass rattles of European make (*boman*).
7. Three cast brass rattles (*prosi*).
8. Two quartz crystals enclosed in brass wire lashings (*penoah*).
9. Several differently coloured beads of Types 5 and 6 (*likich*).

The only information that I have about these charms is that if the quartz crystals are dipped in water and the water allowed to drip from them on to a poisoned wound such as is caused by a venomous snake, scorpion or centipede, the wound becomes cold and the poison eventually will depart from it. Doubtless each one of the charms has specific properties; they are always suspended from the necklet. Circumference of necklet 69 cm., width 2·8 cm.

From Krokong, Upper Sarawak.

E. W. Byrde, Esq. [P. 8. ii. 04].

Catalogue No. 1402. (Plate II. fig. 4, *c*).

Mr. E. W. Byrde, to whom I am indebted for most of the information given above, has in his own collection a less elabor-

ated example of the "pangia," but these two are the only specimens that I have ever seen. At the village of Lanchang, Upper Sadong, all the guests at a feast given in my honour by one of the head-men of the village were sprinkled with water from a basin, the sprinkler being a necklace of a different nature to the "pangia;" owing to the supposed magical properties of this necklace I was unable to buy it and I was not allowed to examine it very closely.

3. Sea-Dyak—"kong-kong rekong."

Bead-necklets worn by adults and children of both sexes.

*a.* Necklet composed of a single string of beads of Type 5. about 3 mm. in diameter, red, yellow, black and white in colour. A few small cast brass rattles are attached to the necklet at one point. The necklet forms a complete loop without a fastening.

Brooke Low collection.

Catalogue No. 414.

According to a note by Brooke Low necklets of this character are given by young men to girls as a token of betrothal, but a Sea-Dyak chief from the Rejang River who recently visited the Sarawak Museum ridiculed this statement; however, amongst the Kyans a girl will give a bead necklet to a man to whom she considers herself betrothed so that it is quite probable that Brooke Low's statement is correct.

*b.* necklet composed of a single string of beads of Type 9 about 6 mm. in diameter; the majority are pale blue in colour, * but a few are white and white and black; all are much weathered. In addition to these beads there are three quartz crystal beads with ground faces, seven cornelian beads (Kyan name *akit*) of varying shapes and sizes and one bead of Type 10 white in colour with some pale yellow zigzag lines, known to Kyans as *bahu tulang* and valued at about $5.

* The pale blue beads are much affected by Kalabits and Muruts and are known to the former as *bahu bata*, they are worth about 50 cents apiece.

Brooke Low collection.

Catalogue No. 148.

*c.* Necklet worn by men composed of four strings of very small beads of Type 5 about 2 mm. in diameter; the majority of beads are dark blue but there are a few red, yellow, black and white ones at the ends of the strings; the four strings of small beads pass at each end into a short single string of yellow beads of Type 8, 4 mm. in diameter and to these are attached tassels of the canines and incisors of the gibbon (*Hylobates*); the necklet is fastened by a pearl shirt-button and a beaded string loop. Length 54 cm.

Catalogue No. 601 *a*. From the Rejang River.

*d.* Necklet composed of sixteen strings of beads of Type 5 about 2 mm. in diameter, the majority of beads are black but a few beads at the ends of the strings are yellow, red, white and blue. The sixteen strings of small beads pass at each end into a short single string of yellow beads of Type 8, 7 mm. in diameter. Four tassels of differently coloured beads of Type 5 complete the necklet; it is fastened with a knot of string and a string loop.

Length 47·5 cm. From the Rejang River.

Catalogue No. 601 *b*.

*e.* Necklet composed of nine cylindrical red beads of Type 6, 12 mm. in length and 5 mm. in diameter, alternating with three short lengths of beads of Type 5, blue, yellow, white and red, 3 mm. in diameter; at the ends four yellow beads of Type 8, 4 mm. in diameter, and two pearl shirt buttons one of which is buttoned into a string loop.

Length 46 cm. From the Rejang River.

Catalogue No. 601 *c*.

*f.* Necklet composed of beads of Type 7, 5 mm. in diameter, blue with rough designs (circles and lines) painted on in yellow and red; at the ends one or two yellow beads of Type 8, 4 mm. in diameter alternating with cylindrical red beads of Type 6, and a tassel of variously coloured beads of Type 5

about 2 mm. in diameter strung on wire; a few bat's teeth are attached to the tassels.

Length 57 cm. From the Rejang River.

Catalogue No. 601, *d*.

*g*. Necklet composed of thirteen beads of Type 10 (two sorts, see Plate VIII. fig. 5), these are in the centre, succeeding them two cylindrical red beads of Type 6, a length of pale blue beads of Type 8, 7 mm. in diameter and a length of yellow beads of Type 8, 6 mm. in diameter. At each end a tassel of small beads of Type 5 variously coloured, about 2 mm. in diameter. The necklet is fastened with a string loop and a brass button. The *lukuts* (beads of Type 10) are not antique.

Length 53 cm. From the Rejang River.

Catalogue No. 601, *e*.

4. Kyan and Sea-Dyak bead-work necklets.

i. Kyan.

*a*. The basis of the necklet is a roll of red cloth, this is covered with bead-work, the beads being of Type 5, about 2 mm. in diameter, white, black, yellow, blue and red; they are arranged in that order to form zigzag lines. Tassels of the same kind of beads red, black and white in colour and strung on fine wire, are attached to the ends of the necklet by a short length of six beads, of Type 8 pale blue and yellow in colour, with one bead of Type 9 included in each length. Fastened with one brass wire hook. Worn by men.

Length 59 cm. Hon. C. A. Bampfylde [P].

Catalogue No. 901. (Plate II. fig. 3, *d*).

A very similar specimen worn by Sea-Dyaks (Leggatt Coll.) is figured by Ling Roth (l. c. Vol. II. p. 72).

ii. Sea-Dyak.

*b*. "kong-kong rekong," a strip of bead-work 37·5 cm. long and 1·6 cm. broad, fastened with a pearl shirt-button and beaded thread loop. The beads are of Type 5, about 2 mm. in

diameter and variously coloured, they are arranged to form a geometrical pattern in five divisions; each element of the pattern is known as *Katak* (frog).

From the Saribas River. Kalong [P. 10. xi. 92].

Catalogue No. 793. (Plate II. fig. 3, *c*).

### IV. Brass Wire Necklets.

There are no specimens of such in the Sarawak Museum Ling Roth (l. c. Vol. II. p. 76) quotes Spencer St. John "The girls [Muruts] twist about a couple of fathoms of brass wire in circles round their neck, rising from the shoulders to the chin, forming what appears a stiff collar with a very broad base ..... ". This refers to Muruts of the Limbang river headwaters. The Dusuns of Toadilah and the Tinagas Dusuns according to Hatton and Witti also wear brass wire necklets.

## *Ornaments worn on the arms and legs.*

I. Armlets and leglets of plaited fibre, rattan, etc.
II. Armlets of wood.
III. Armlets of ivory, of horn, of shell, of porcelain.
IV. Armlets and leglets of rattan and brass annuli.
V. Armlets and leglets of brass wire.
VI. Bracelets and anklets of brass, of copper and of silver.

### I. Armlets and Leglets of Plaited Fibre, Rattan, etc.

1. "unus."

These are rings of finely plaited fibre worn by men in considerable numbers on the arms below the elbow and on the legs below the knee; the fibre is collected from the base of the sheathing leaves of the *apeng* palm (*Arenga sp.*) or of the *ijok* palm (*Arenga saccharifera*) and sometimes the sclerenchymatous fibres in the stem of the common bracken (*Pteris aquilina*) are employed. As many as three hundred of these leglets may be worn on one leg. The rings have a fixed value and at one time

were employed as currency. All the tribes of Borneo seem to affect these simple ornaments (cf. Ling Roth l. c. Vol. I. pp. 5, 11, 14, 15, 23), and they are found in many other parts of the world also e. g. in the Shan States, in the Torres Straits etc. *

i. Sea-Dyak.

*a.* Forty-six rings of plaited palm fibre, about 7 cm. in diameter.

From the Lamanak River.

Brooke Low collection.

Catalogue No. 611.

ii. Sihan.

*b* Two hundred and four rings of plaited palm fibre, in two bundles, about 11 cm. in diameter.

Brooke Low collection.

Catalogue No. 141.

2. Sea-Dyak—"tenklai lengan."

*a.* Bracelet of two loosely plaited lengths of a jungle creeper known as *akar ensunat*; worn by boys.

Diameter 7 cm.

Brooke Low collection. Figured by Ling Roth (l. c. Vol. II. p. 75).

Catalogue No. 138.

*b.* Bracelet, worn by boys, made from a stout piece of split rattan, one end is produced to form a long narrow strip which is passed through a hole in the other end and wound tightly round so as to bring the two ends together and overlapping.

Diam. 7·5 cm.

Brooke Low collection.

Catalogue No. 136 *a*.

*c.* Similar specimen, but the outside of the bracelet is decorated with a rough pattern burnt on it with a red-hot wire.

* The Kyans say that they feel quite naked if they do not wear *unus*.

Diam. 8·1 cm.

Brooke Low collection.

Catalogue No. 136 *b*. (Plate VIII. fig. 12).

*d*. Similar specimen, but the poker-work design is more carefully executed; one end of the rattan is produced to form a short strip with a knob at the end and this is buttoned through a hole in the other end.

Diam. 7·7 cm.

Brooke Low collection.

Catalogue No. 136 *c*.

3. Kenyah bracelets of rattan work.

*a*. twelve bracelets worn by men (?). Eleven are cylindrical pieces of rattan with strips of finely split rattan dyed black closely wound round; round the outside runs a strip of yellow rush interlaced with the rattan strips. One bracelet is broader than the others, made from a flat strip of rattan closely wound with finely split rattan strips and three strands of rush interlaced on the outside.

Diam. about 6 cm.

From the Uma Kelap.

Brooke Low collection.

Catalogue No. 399 *b*.

## II. Armlets of Wood.

These are made of wood cut from the buttress of a large jungle tree; the wood is known as *tapang* (*Abauria excelsa*); the Sea-Dyak wooden armlets are decorated with inlaid pieces of tin. The armlets are worn above the elbow and by men only.

1. Land-Dyak, Kyan and Kenyah wooden armlets.

i. Land-Dyak—"enkli."

*a*. Wooden armlet, the outside bevelled and with a groove running round it.

Diam. 8 cm.; depth 1·3 cm.; thickness 2·7 cm.

From the Menggrat of Piching, Upper Sadong River [Pd. viii. 03].

Catalogue No. 1305.

ii. Kyan.

*b.* Wooden armlet, the outside bevelled.

Diam. 9·6 cm.; depth 1·5 cm.; thickness 1·1 cm.

Brooke Low collection.

Catalogue No. 603.

iii. Kenyah—"selang."

*c.* Wooden armlet, the outside not bevelled, with a groove running round it.

Diam. 8·8 cm ; depth 1·4 cm.; thickness, 0·7 cm.

From the Leppu Tau of the Batang Kyan, Dutch Borneo. R. S. Douglas Esq. [P. 26. iii. 03].

Catalogue No. 1067.

2. Sea-Dyak—"simpai tapang."

Wooden armlets so shaped as to be almost triangular in transverse section, the base of the triangle being inside and next the arm the apex outside, or in other words the wood is carved down to form a sharp pointed median ridge all round the armlet on the outside. Pieces of sheet tin cut into small triangles, ovals and crescents are let in to the wood and are so arranged as to form simple patterns, such as two rows of triangles their apices directed towards each other and towards the median ridge, with ovals on the ridge itself alternating with them. (Plate V. fig. 10, *a*).

*a.* A row of ovals only on the median ridge.

Diameter 11·1 cm.; depth 2·5 cm.; thickness 1·6 cm.

*b.* A double row of triangles their apices directed towards the median ridge, with a double row of crescents alternating with them and brass studs on the median ridge.

Diameter 9·4 cm.; depth 2·8 cm.; thickness 0·9 cm.

*c.* Very similar, but the triangles distorted into irregular triangular figures, eight ovals let into the median ridge and so deeply countersunk that the armlet is nearly octagonal in outline.

Diameter 10·1 cm.; depth 1·7 cm.; thickness 1·1 cm.

*d.* Very similar to the above but all the figures very irregular in shape.

Diameter 10·3 cm.; depth 1:8 cm.; thickness 1·1 cm.

*e.* A double row of triangles and twelve ovals on the median ridge.

Diameter 9·9 cm.; depth 1·4 cm.; thickness 1·2 cm.

*f.* Similar but with tin studs arranged in threes alternating with the triangles. (Figured by Ling Roth l. c. Vol. II. p. 74).

Diameter 9·6 cm.; depth 1·4 cm.; thickness 1·1 cm.

*g.* Similar but the tin studs arranged in fives.

Diameter 9·4 cm.; depth 1·3 cm.; thickness 1·2 cm.

*h.* Similar to *b* but with no brass studs on the median ridge.

Diameter 8·9 cm.; depth 2·3 cm.; thickness 1·2 cm.

Brooke Low collection.

Catalogue No. 135.

Ling Roth figures (l. c. Vol. II. p. 74) two other *simpai tupang*, one has been cut to receive the pieces of tin but these have either been lost or were never inlaid; the other, worn by boys is said to be inlaid with tin foil, the pattern formed is rather different from any described above:—a double row of triangles with their apices notched and a row of diamond-shaped figures on the median ridge alternating with these.

## III. Armlets of Ivory, of Horn, of Shell, of Porcelain

1. Kyan—ivory armlets (Sea-Dyak name "tumpa bala").

*a.* ivory armlet worn by a chief; the outside is fluted with broad oblique grooves which in one place become wary; at two points opposite to each other is a carving in relief representing

possibly a dragon (*udoh asu*), the common Kyan design. (Plate VIII. fig. 13. *a*, *b*).

Diam. 8·5 cm.; depth 1·5 cm.

Brooke Low collection.

Catalogue No. 602. (Plate V. fig. 10, *c*).

*b*. Ivory armlet worn by a chief; quite plain and unornamented.

Diam. 9 cm.; depth 1·5 cm.

Brooke Low collection.

Catalogue No. 140.

2. Kyan—"takieng," armlet made from the casque of the hornbill, *Rhinoplax vigil*.

*a*. A long narrow strip has been cut from the hornbill's casque, bent into a ring and the ends joined most skilfully, the outside is bevelled. The armlet is of beautiful rose and amber colours and is semi-translucent; I have no information as to the exact way in which the rather intractable material is worked into its present shape.

Diam. 7·6 cm.; depth 1·1 cm.

[Pd].

Catalogue No. 1018.

3. Sea-Dyak—"tuchong simpai," shell armlets.

*a*. Armlet formed by grinding down so as to form a broad ring a large cone-shell (*Conus guratensis*) known as *kima*; the space between the outer wall of the shell and the first turn of the spiral is filled up with dammar in which are embedded small ground-down cowries; the outside is fluted with shallow grooves. Worn above the elbow by men.

Diam. 11·1 cm.; depth 6 cm.

Brooke Low collection.

Catalogue No. 142 *a*. (Plate V. fig. 11, *a*).

*b*. Similar but smaller.

Diam. 10 cm.; depth 5 cm.

Brooke Low collection.

Catalogue No. 142 *b*.

Both the above specimens are figured by Ling Roth (l. c. Vol. II. p. 74).

The scarlet *saga* (*Adenanthera pavonina*) seeds frequently replace the ground cowries of the specimens described above.

Somewhat similar shell armlets known as *rangke* are worn by Sea-Dyak women, on high-days and holidays but they are smaller and less carefully finished, eight to twelve are worn on each arm. Ling Roth (l. c. Vol. I. p. 20). Figures a Sea-Dyak (wrongly labelled Kanowit) girl wearing these ornaments.

The Land-Dyak women of the Upper Sadong and Upper Sarawak (left-hand branch) rivers wear shell armlets, (*rapak*) alternating with coils of brass wire; the fashionable number is four to each arm, one round the biceps, one just above the elbow, one round the middle of the fore-arm and one round the wrist; these armlets are purchased from Chinese traders for about $5 apiece, they are always quite plain and about 4 cm. in depth; armlets of porcelain are sometimes substituted for the shell armlets, a specimen in the Canterbury Museum is figured by Ling Roth (l. c.Vol. II. p. 74)

Quite a recent importation are the series of slender rings of celluloid worn on the fore-arm by Sea-Dyak men; the armlets are made in Europe and cost about $10 a set; the rings are threaded together by string. Similar armlets but made of ivory are worn by Kenyah women.

## IV. Armlets and Leglets of Rattan and Brass Annuli.

These ornaments, known as "engkrimu" are worn by Sea-Dyak men only and according to Brooke Low chiefly by the Sakarang and Lamanak sub-tribes.

1. Sea-Dyak—"engkrimu."

*a*. A set of leglets worn by men: the set consists of four series of graduated rings of split rattan strands on to which are threaded numerous small brass annuli; one series consists of

eleven rings, one of thirteen rings and two of twelve rings; the rings of each series are kept together by three brass wires which transfix each ring; the front of every ring is marked by three annuli of rattan stained black, with three annuli stained red on each side, two brass annuli intervening, when all the rings are in position on the leg the effect is produced of a slender black line running down the middle of the front of the series with a red line on each side; two series of rings are worn on each leg, the upper series is worn with the largest ring at the bottom, the lower series with the largest ring at the top, so that the two together fit over the bulge of the calf.

Diam. of largest ring 11·5 cm.; of smallest 9·1 cm.

Brooke Low collection.

Catalogue No. 134. (Plate V. fig. 11, *d*).

*b.* Seven rings of split rattan strands bound together by a wrapping of a narrow strip of rattan cuticle stained red with dragon's blood and a strip stained black with indigo; several brass annuli are threaded on each ring. Worn on the arms.

Diam. of largest ring 9·6 cm.; of smallest 7·1 cm.

Brooke Low collection.

Catalogue No. 139.

### V. Armlets and Leglets of Brass Wire.

These are coils of brass wire and sets of brass wire rings. The Sea-Dyak term for both varieties is *sĕlong*, though as a rule it is applied only to leglets, whilst the terms for armlets are *tumpa selong* or *tumpa belit* and *tumpa gurang*, the former being applied to the wire coils, the latter to the sets of separate rings. Sea-Dyaks assert that the separate wire rings are of a comparatively modern date having been introduced amongst them by the Malohs of Kapuas. Women wear both brass coils and separate brass rings on the arms and legs, but men wear neither on the legs and rarely wear brass coils on the arms. The ornaments are not in every day use but are only assumed on high-days, holidays or other special occasions. A figure of a Sea-Dyak girl with her legs covered from the knees to the ankles

with a graduated brass wire coil is given by Ling Roth (l. c. Vol. I. p. 21); the men do not wear brass wire leg-ornaments to such an extent, but cover the arms with brass wire separate rings. The Land-Dyak women of the Upper Sadong and Upper Sarawak (left-hand branch) rivers always wear a coil of brass wire (*sarin*) on the legs from below the knee to just above the ankle, the coils are wound very tightly round the leg and in course of time considerable distortion of the calf of the leg is produced; even small girls of 7 or 8 years of age are burdened with quite a considerable weight of metal. Coils of brass wire alternating with shell armlets (cf. p. ) are worn on the arms from below the shoulder to the wrist. Land-Dyak men of the Sauh, Serambo and Singgi districts wear armlets of brass wire coils at festivals. Dusun women wear a coil of brass wire round the wrists and round the ankles, also separate rings.

1. Dusun—armlet.

*a*. Ring of brass wire worn as a bracelet by women.

Diam. 6·7 cm.

R. Shelford [P. 28. ix. 03].

Catalogue No. 1336.

2. Sea-Dyak—"tumpa gurang."

*a*. Four sets of brass wire rings, sixty to a set, worn as armlets by men; the rings have been arranged in graduated sizes on rolls of bark cloth; nearly all are penannular and a few in each set have been incised on the outside with lines and circles.* The smallest rings are worn just above the elbow, the largest on the wrist and upper arm.

Average diam. of largest rings 7 cm.; of smallest 5 cm.

Brooke Low collection.

Catalogue No. 133. (Plate V. fig. 11, *c*).

*According to Brooke Low these incised rings are known as *tenklai* but *gurang kinkieng* is probably their correct name (vide infra).

*b.* Three penannular rings of brass wire worn as armlets by men; two have simple geometrical patterning incised on their outer border, one is twisted.

Diam. 6·7 cm.; 7·1 cm; 7 cm. (twisted specimen).

Brooke Low collection.

Catalogue No. 604.

A Rejang Sea-Dyak informed me that *tumpa glos* was the name for these ornaments in his district; in the Batang Lupar River *glos* is equivalent to the Malay *galang*, or bracelet, and the term is applied to the silver bracelets worn by Balau and Sebuyau women.

3. Sea-Dyak—"tumpa sĕlong."

T· o coils of brass wire worn as armlets by women; the wire of one coil at one end is notched on the outside (*kinkieng*).

Brooke Low collection.

Catalogue No. 132.

In Brooke Low's catalogue these are entered as *gurangor tumpa selong*; *gurangor*, means unfinished bracelets, leglets or armlets.

4. Sea-Dyak—"sĕlong."

*a.* Six penannular rings of brass wire worn round the ankles by women; two are quite plain, four are notched or punched on the outside. According to Brooke Low these anklets are "given to those called on to feed the gods on feast-days," but a Sea-Dyak chief from the Rejang River scouted this statement; the same informant gave as the name of these ornaments *sĕlong kinkieng.**

Diam. 11·4 cm. to 9·2 cm.

Brooke Low collection.

Catalogue No. 137.

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**Kinkieng* means notches, the term applies to the rings with the outside notched and punched.

*b.* Two long coils of brass wire worn as leglets by women.

Brooke Low collection.

Catalogue No. 1421. (Plate V. fig. 11, *b*).

*c.* One coil of brass wire worn as a leglet by women. This is one of a pair of coils.

Catalogue No. 948.

## VI. Bracelets and Anklets of Brass, Copper and Silver.

1. Sea-Dyak—"tumpa sidieng."

*a.* A pair of brass bracelets worn by women; each is a broad penannular band incised on the outer surface with a simple geometrical design known as *puchok rebong*, i.e. bamboo shoots. From the Engkari sub-tribe.

Breadth 4·8 cm.; diam. 5·8 cm.

Brooke Low collection.

Catalogue No. 395. (Plate V. fig. 10, *d*).

2. Sea-Dyak—"gerang giring."

*a.* Two pairs of brass anklets worn by women. Each anklet is a tube of thick brass bent into a penannular ring; the tube is somewhat elliptical in section; the outer border of the tube is split by a broad slit which runs almost from one end to the other, the ends however are for a short distance closed in; in the tube run five or six spheres of brass which make a jangling noise whenever the wearer moves about. The outside of the anklets is covered with designs in bold relief, one design is a series of wedges (*puchok rebong*), another is phyllomorphic and a crocodile figures on one example.

Diam. 13·6 cm. to 13·1 cm.

Brooke Low collection.

Catalogue No. 393. (Plate V. fig. 10, *b*).

Similar anklets but made of silver are worn by unmarried Malay girls, and there is little doubt but that the Sea-Dyaks borrowed the ornament from them.

A figure of a Sea-Dyak girl wearing a pair of these anklets in addition to coils of brass wire is given by Ling Roth (l. c. vol. I. p. 21).

Sea-Dyak women, especially the Sibuyaus and Balaus, commonly wear silver armlets known as *tumpa glos* shaped like the wooden armlets worn by men, but hollow and ornamented with repoussé patterns; they are worn from the wrist to the elbow.

Ling Roth figures (l. c. vol. II. p. 74) a Kadyan penannular bracelet of copper with three silver wires running round it and also a metal bracelet from the Baram river with a simple clasp, both specimens are quoted as being in the collection of Mr. C. E. Peek.

## *Finger Rings.*

I. Finger-rings of shell.

II. Finger-rings of brass, copper etc.

### I. Finger Rings of Shell.

1. Sea-Dyak.

*a.* Made from a ground-down Trochus (?) shell, the outer border has a deep groove running round it.

Diam. 2·6 cm., depth.

Private Srubi of the Sarawak Rangers [P. 28. i. 87].

Catalogue No. 671.

A somewhat similar finger-ring occurs in a collection of witch-doctor's charms in the Sarawak Museum; its outer border has been filed so as to leave a median series of diamond-shaped facets.

### II. Finger Rings of Brass, Copper Etc

1. Dusun—"penulong."

*a.* Brass finger ring, the outside slightly bevelled.
Diam. 2 cm.; depth 0·6 cm.
From Kiou, Kina Balu.
Drs. G. D. and H. A. Haviland coll. [P. v. 92].
Catalogue No. 774.

2. Sea-Dyak—"tinchin," finger rings.

These are worn by both sexes; they are said to be made by Malohs of the Kapuas. The seal ring is known as *tinchin bekubun*, all the others as *tinchin sara* or *surun*.

*a*. Seal ring of brass, the bezel is oval with a conventional flower (?) carved in deep relief on it, the outside of the ring with two grooves.

Diam. 2 cm. Brooke Low collection.

Catalogue No. 607 *a*. (Plate VII. fig. 1 the seal from the front).

*b*. A broad penannular band of brass, the outside with horizontal grooves and lines of punch-marks.

Diam. 2 cm.; breadth 1·2 cm. Brooke Low collection.

Catalogue No. 607 *b*.

*c*. Very similar, but with a broad median horizontal groove and two lines of zigzag pattern.

Diam. 1·9 cm.; breadth 1·2 cm. Brooke Low collection.

Catalogue No. 607 *c*.

*d*. Very similar to *b* but much narrower.

Diam. 1·9; breadth 0·8 cm. Brooke Low collection.

Catalogue No. 607 *d*.

*e*. Almost identical with *d*.

Diam 1·9 cm.; breadth 0·7 cm. Brooke Low collection.

Catalogue No. 607 *e*.

*f*. Almost identical with *d*.

Diam. 1·9 cm.; breadth 0·6 cm. Brooke Low collection.

Catalogue No. 607 *f*.

*g*. Very similar to *d* but the brass much thinner.

Diam. 1·9 cm.; breadth 0·7 cm. Brooke Low collection.

Catalogue No. 607 *g*.

*h*. Very similar to *c* but narrower; the broad median groove has a line of herring-bone pattern on each side of it.

Diam. 1·9 cm.; breadth 0·7 cm. Brooke Low collection.

Catalogue No. 607 *h*.

*i.* Very similar to *d* but narrower.

Diam. 1·9 cm.; breadth 0·5 cm. Brooke Low collection. Catalogue No. 607 *i.*

*j.* Very similar to the above, but the grooves and incised lines very finely marked.

Diam. 1·9 cm.; breadth 0·5 cm. Brooke Low collection. Catalogue No. 607 *j.*

*k.* Very similar to *d*, *e*, *f*, but with a broad band of incised ovoid figures running round the outside of the ring.

Diam. 1·9 cm.; breadth 0·7 cm. Brooke Low collection. Catalogue No. 607 *k.* (Plate VII. fig. 7).

*l.* A narrow penannular ring of brass, the outside slightly bevelled and decorated with a median row of circles, flanked on either side with an incised zigzag line.

Diam. 1·9 cm.; breadth 0·5 cm. Brooke Low collection. Catalogue No. 607 *l.*

*m.* A thick narrow ring of copper, the outside decorated with vertical grooves.

Diam. 2·1 cm.; breadth 0·2 cm. Brooke Low collection. Catalogue No. 607 *m.*

*n.* A thin narrow ring of copper, the outside decorated with a row of incised circles, between each circle two crescents back to back.

Diam. 1·9 cm.; breadth 0·4 cm. Brooke Low collection. Catalogue No. 607 *n.*

*o.* A narrow penannular ring of brass, the outside bevelled and decorated with an incised zigzag between two delicate grooves; the inside is marked with an incised herring-bone design passing suddenly into a row of circles.

Diam. 2·1 cm.; breadth 0·3 cm. Brooke Low collection. Catalogue No. 143 *a.*

*p.* A narrow penannular ring of brass, the outside decorated with a deeply notched ridge.

Diam. 2·1 cm.; breadth 0·5 cm. Brooke Low collection. Catalogue No. 143 *b*.

*q*. Very similar, but smaller and more carefully finished; the notches in the ridge on the outside of the ring have been so cut that a series of star-shaped figures in high relief have been left.

Diam. 1·8 cm.; breadth 0·5 cm. Brooke Low collection. Catalogue No. 143 *c*. (Plate VII. fig. 8).

*r*. A penannular ring of brass to which is affixed by a brass rivet a disc of copper with the border deeply and regularly notched; the outside of the ring is decorated with incised lines forming a pattern shewn in the figure.

Diam. of ring 1·9 cm.; breadth 0·6 cm.; diam. of disc 2·5 cm.

Brooke Low collection.

Catalogue No. 143 *d*. (Plate VII. fig. 2. *a*, *b*).

*s*. A penannular ring of brass, with a curiously shaped bezel occupying half the circumference of the ring; the outside of the ring is decorated with a row of dots in high relief (produced by notching a ridge as in *p*. and *q*).

Diam. 1·9 cm.; breadth 0·7 cm.

Brooke Low collection.

Catalogue No. 143 *e*. (Plate VII. fig. 3. *a*, *b*).

*t*. A penannular band of brass with a rudimentary bezel formed by cutting vertically the pattern (grooves and lines of punch-marks) which runs horizontally round the rest of the ring, * from each corner of the bezel rises a hook cut out from the ring.

Diam. 1·7 cm.; breadth 1·2 cm. Brooke Low collection. Catalogue No. 143. (Plate VII. fig. 4).

*u*. A narrow penannular ring of brass; one free end of the ring has been split into two, the other into three, these split ends have been rolled up into flat coils, the odd one occupying the centre of the quincunx.

* Except a narrow piece at the back opposite to the bezel.

Diam. 1·7 cm.; breadth 0·3 cm. Brooke Low collection. Catalogue No. 148 *g*. (Plate VII. fig. 4).

*v*. A broad penannular band of brass, the borders deeply notched, the outside decorated with grooves, lines of punch-marks and series of incised lines.

Diam. 2 cm.; breadth 3·2 cm. Brooke Low collection. Catalogue No. 143 *h*. (Plate VII. fig. 6).

## *Ornaments worn round the body.*

I. Rattan girdles.
II. Bead girdles.
III. Chain girdles.
IV. Brass girdles.
V. Corsets.

### I. Rattan Girdles.

1. Dusun—"lindanau."

*a*. Coils of split rattan dyed red and black worn by women round the waist and round the chest, the latter to keep in position the *tabut*, a strip of cloth worn by unmarried girls to cover the breasts.

From Kiou, Mt. Kina Balu.

Drs G. D. and H. A. Haviland [P. v. 92].

Catalogue No. 772.

2. Land-Dyak—"sembed."

*a*. A coil of split rattan stained red, worn round the waist by women; the coil is prevented from unwinding by being passed several times through one or two brass rings.

From Tabekang, Upper Sadong River.

[Pd. viii. 03].

Catalogue No. 1309.

Similar rattan coils (*tina*) are worn by Sea-Dyak and Murut women.

## II. Bead Girdles.

1. Sea-Dyak—"entelo."

*a.* A girdle composed of five rows of large beads strung on strips of split rattan worn by women suspended from the lower border of the corset. The beads are of three kinds:—(1) long white shell beads made by boring longitudinally the columella of a large gastropod shell (Type 3. Kyan name *ino seh*), (2) large spherical glass beads (Type 6) the dark-blue ones are known as *tobi* and are antique, the paler blue are known as *kamiring* and are more modern; (3) large spherical glazed clay beads, red in colour (Type 9. Kyan name *dara bouin* i.e. pig's blood). These alternate with one another, some shell discs being interspersed. At one end of the girdle is attached a short loop of beads of Type 11, some are blue with a red zigzag (known as *klam batang umar* i.e. bead worth part of a house and often worn hanging from the ear lobe by Kalamantan tribes of the Baram district). (Plate VII. fig. 6); some are of green glass with red and yellow circles painted on (known as *klam buang kowit*, i.e. bear's claws beads) (Plate VIII. fig. 8), and one is a fluted bead, of blue glass (known as *klam dian*, i.e. durian bead,) (Plate VIII. fig. 9) and a few common yellow beads are intermixed.

Length 94 cm. Brooke Low collection.

Catalogue No. 146. (Plate VI. fig. 12, *a*).

It seems likely that this girdle was looted from Kyans by Sea-Dyaks, as some of the beads are antique and antique beads in the possession of Sea-Dyaks have almost invariably been formerly the property of the more aboriginal natives of Borneo.

A portion of this girdle has been figured by Ling Roth (l. c. Vol. II. p. 46).

2. Milano—bead girdle.

*a.* A girdle composed of five rows of beads strung on strips of split rattan, in the middle is a cross piece of rattan through which the rattan strips pass and at each end are similar cross-pieces; the loose ends of the rattan strips are joined

with elaborate knots. The beads are nearly all of Type 6. various shades of blue in colour (*tobi* and *kamiring*), there are four beads of the variety known to Kyans as *klam dian*; one bead is of opaque white glass. The value of the beads 304 in number has been assessed at $150.

Length 62 cm. H. H. the Ranee of Sarawak [P. 24. vi. 95].

Catalogue No. 967.

The girdle was found at Lundu.

Somewhat similar bead-girdles are worn by Kyan and Kenyah women; the beads are generally antique and of Venetian make (Types 9 and 11) and are very highly prized (cf. Ling Roth l.c. Vol. II. p. 55).

Dusun women wear round the hips "rows of red beads closely threaded to a depth or six inches or so" (Whitehead, Exploration of Mt. Kina Balu, p. 106 and Plate).

Murut women wear a somewhat similar bead girdle.

3. Tanjong—"takup."

*a*. A string of beads of Venetian manufacture blue in colour with white-edged red spots; to the string is attached a piece of *kima* shell (*conus guratensis*).

Worn by little girls.

Brooke Low collection.

Catalogue No. 199. (Plate VI. fig. 12, *d*).

Figured by Ling Roth (l. c. Vol. II. p. 42). Ling Roth on the same page also figures a girdle and shell vine leaf from W. Borneo, the girdle appears to consist of seven strips of rattan on which are threaded numerous small brass rings.

### III. Chain Girdles.

1. Dusun—chain girdle.

*a*. Consists of twenty-seven small chains of brass wire penannular links; the chains are held together by a string lacing.

The girdle is continous without a fastening so must be slipped over the head and shoulders; it is worn by women over the hip-band of beads noted above.

From the north of Mt. Kina Balu.

Mr. Steffen [P. vi. 92].

Catalogue No. 784. (Plate VIII. fig. 16).

Similar chains are worn by Land-Dyak women of some districts in Upper Sarawak they are known as *sabit*.

2. Sea-Dyak—"tali mulong."

*a*. A chain band worn by women over the corset. The links are of brass and penannular and they are threaded on string in the same way as beads are threaded in bead-work (Plate VIII. fig. 15). The buckle consists of two strips of brass; the last row of links at each end of the girdle pass through perforations in the strips, the unattached edges of the strips are turned over in opposite directions so that they interlock.

Length 77·5 cm.; breadth 2·8 cm. Brooke Low collection.

Catalogue No. 147. (Plate VI. fig. 12, *b*).

A portion of this girdle is figured by Ling Roth (l.c. Vol. II. p. 46).

## IV. Brass Girdles.

1. Sea-Dyak—"senawir."

*a*. A flat strip of brass bent into a hoop with the ends turned over in opposite directions and interlocking. Forty-two small silver coins of Holland (dates 1718-1789) are suspended by brass links from the lower edge of the girdle and from the coins hang small notched and flat brass pendants. The outside of the brass hoop at one end is incised with simple geometrical designs and a phyllomorphic design. Worn by women over the corset.

Diam. 29·5 cm.; breadth 1·8 cm.

Brooke Low collection.

Catalogue No. 145. (Plate VI. fig. 12, *c*).

A small portion of this ornament is figured by Ling Roth (l.c. Vol. II. p. 46).

Both the *senawir* and the *tali mulong* have been largely displaced by belts made of dollars strung together with silver links, the buckle of the belt is generally of Chinese pattern and make. The Land-Dyak women of the Upper Sadong and Upper Sarawak (left-hand branch) rivers wear similar dollar girdles.

## V. CORSETS.

These are worn by Sea-Dyak and Land-Dyak women only; the Land-Dyak corset is of quite a different type to the Sea-Dyak article; there are two varieties of Sea-Dyak corsets:— 1. the *rawai*, 2. the *rawai tinchin*.

1. Sea-Dyak—"rawai."

*a*. Twenty-five circles of strips of pandan leaf, graduated in size, the topmost * is 30·4 cm. in diameter, the lowest is 21·4 cm. On these circles are closely strung numerous small penannular annuli of brass; down the centre of the front of the corset runs a black line formed by 3 rings of rattan-cuticle stained black on each pandan leaf circle, on each side of the black line is a brass ring line flanked by a red strip formed by three rings of rattan cuticle stained red on each rattan circle (cf. ornamentation of *éngkrimu* p. 46). The pandan leaf circles are bound together by five vertical rods of brass wire which transfix all the circles and pin them closely together. There is no means of opening out this corset which has therefore to be slipped over the head and shoulders of the wearer.

Height 21 cm.

Brooke Low collection.

Catalogue No. 144 *a*. (Plate VI. fig. 13, *a*).

*b*. A similar specimen, but with twenty-eight circles, the topmost is 29 cm. in diam. the lowest 20·5.

Height 23·5 cm.

* The specimen shown in the figure is upside down.

Brooke Low collection.

Catalogue No. 144 *b*.

Figures of Sea-Dyak women wearing these ornaments are given by Ling Roth (l.c. Vol. I. pp. 2 and 4 Vol. II. frontispiece and page 43). Below the *rawai* round the hips are frequently worn numerous separate pandan leaf circles strung with brass annuli but these may really be considered as components of the corset. It is now the fashion to decorate the *rawai* with rows of dollars attached by brass or silver links to the circles. The rawai should only be worn by married women, but the custom in now more honoured in the breach than in the observance.

2. Sea-Dyak.—"rawai tinchin."

*a*. Corset composed of ten rows of large broad penannular rings of brass strung on strips of split rattan; the rows are bound together one above the other on an internal framework of split rattan. The rows of rings do not form complete circles, but their ends are attached each to a vertical band of plaited brass wire; to each plaited band is fastened by brass wire links two vertical strips of brass, the free borders of which are turned back in opposite directions so that they can interlock; this primitive form of buckle is known as the *pintu* (*lit*, door). The brass penannular rings vary in breadth from 3·5 cm. to 2·7 cm., their diameter is about 1·8 cm.; simple geometrical and scroll designs are incised on them. Narrow penannular brass rings (4 mm. broad) outwardly notched alternate with the broad rings of the bottom five rows of the corset. The front of the buckle is ornamented with incised geometrical designs and a phyllomorphic design (*tankei marau*, bunches of rattan). The corset is of equal diameter throughout.

Height 19·5 cm.; diam. 24·3 cm. Said to have been made by Malohs of the Kapuas River.

Brooke Low collection.

Catalogue No. 572. (Plate VI. fig. 13, *b*).

This form of corset was formerly confined to the Ulu Ai and Engkari Sea-Dyaks but its distribution seems to be wider nowadays. The front of a somewhat similar specimen in the Leiden Museum is figured by Ling Roth (l.c. Vol. II. p. 46).

3. Land-Dyak—"sladan."

*a*. Corset worn by unmarried girls and widows: it is a cylinder of bark, slightly elliptical, covered on the outside with close-set vertical strips of triangular brass wire (*ikan rashun*), their ends bent over to clip the upper and lower edges of the bark cylinder. The brass strips that cover the part of the corset which is worn in front are narrower than those at the back.

Height 22 cm.; diam. 23·4 × cm. 21·6 cm.

From Krokong, Upper Sarawak. E. W. Byrde Esq. [P. 8. ii. 04].

Catalogue No. 1401. (Plate VI. fig. 13, *c*).

These corsets are worn by the Land-Dyaks of the right-hand branch of the Upper Sarawak river,* not by those of the left-hand branch or of the Upper Sadong. As can well be imagined the corsets are most uncomfortable to wear and very difficult to put on and to remove; the removal of the corset is indeed a most painful process, the subject hangs by her hands from a beam whilst a friend gradually works the corset off inch by inch; a liberal application of oil is generally needed but even with this aid it may be some hours before the martyr to fashion is relieved of her brass bound casing.

## *Buttons and Buckles.*

### I. Buttons.

1. Malay (*Brunei*)—"ka'bumban."

*a*. Nineteen silver-gilt buttons; the buttons which are hollow are made in two halves, the lower half is provided with a loop, the upper half is decorated with a conventional pattern in repoussé.

[Pd. 21. v. 04].

Catalogue No. 1417. (Plate VIII. fig. 10).

*Krokong, Singgi, Sauh, Serambu, Bombok, Peninjau etc., it is also worn by the Jagoi on the Dutch border.

Very similar buttons are figured by Ling Roth (l. c. Vol. II. p. 42); they are worn by Milano, Kanowit and Tanjong women along the tightly-fitting sleeves of their jackets, also by Brunei Malay and Kadyan women down the front of their jackets. Strings of them are sometimes worn by Sea-Dyak women as necklets and one or two will often serve as the button of a bead necklet.

## II. Buckles.

Buckles other than the primitive clasps of brass corsets and belts described above are not often met with amongst the Bornean tribes; the specimen described below was probably made in the Malay Peninsula where this kind of work is not uncommonly met with.

1. Malay—buckle.

*a.* A sharply pointed oval sheet of iron, convex from front to back, the border stepped. A conventional phyllomorphic design has been beaten in *basso relievo* into the front face of the ornament, over this a plate of silver has been laid and the two sheets of metal have been welded together, subsequently the front face of the buckle has been filed until all the silver has been removed except that filling in the sunk phyllomorphic design; the result is a design in silver on a back ground of iron. At the back of the ornament is a large iron loop.

14 cm. × 7·1 cm.

Said to come from Sirhassen, Natuna Islands. [Pd].

Catalogue No. 1037.

The belts made of dollars strung together by silver wire links much worn by Sea-Dyak and Land-Dyak women are generally fastened with a silver S-shaped hook of Chinese manufacture and design.

# Explanation of Plates I.—VIII.

## Plate I.

Fig. 1. × ½ linear.

*a.* Murut *pleng*, hairpin.
*b.* „ „ „
*c.* Peluan „ „
*d.* Tagal „ „
*e.* „ „ „
*f.* Murut hairpin.
*g.* „ „ „
*h.* Peluan „ „

Fig. 2. × ¼ linear.

*a.* Murut brass hairpin worn by either sex.
*b.* „ „ „ „ „ „ „
*c.* Kalabit *plin*, hairpin worn by men.
*d.* Dusun *timbok*, hairpin worn by women
*e.* „ „ „ „ „ „
*f.* Malay *sisir penyu*, tortoiseshell comb.

Fig. 3. × ⅙ linear.

*a.* Malay *tajok*, head ornaments worn by bridegrooms.
*b.* „ *sisir*, tiara worn by brides.
*c.* Sea-Dyak *kong-kong rekong*, bead-work necklet.
*d.* Kyan bead-work necklet.

## Plate II.

Fig. 4. × ⅙ linear.

*a.* Land-Dyak *bobot*, necklet worn by men.
*b.* Murut *bani*, bead necklet worn by women.
*c.* Land-Dyak *pangia*, necklet worn by female witch-doctors.

Fig. 5. × $\frac{2}{7}$ linear.

*a.* Tanjong *ariek lasong*, a pair of brass earrings worn by women.

*b.* Kanowit *ariek geragum lasong*, a pair of brass earrings worn by women.

*c.* Long Gilat tin earrings worn by men.

*d.* Tanjong *ariek semera*, tin earring worn by women.

*e.* Kanowit *ariek spenge*, one copper earring from a set of ten worn by women.

*f.* Land-Dyak *anteng*, earrings worn by men in festal dances.

## Plate III.

Fig. 6. × $\frac{1}{6}$ linear.

*a.* Sea-Dyak *langgu bangkang*, pair of tin ear-pendants worn by men.

*b.* Bakatan *urut* ,, ,, ,,

*c.* ,, ,, tin ear-pendant.

*d.* Gold ornament found in river gravel at Pankalan Ampat.

*e.* Kyan a pair of ear ornaments worn by chiefs.

*f.* Leppu Tau *isang*, ear-pendant of horn worn by men.

Fig. 7. × $\frac{1}{4}$ linear.

*a.* Kanowit *buah bitok lasong*, a pair of brass ear-drops worn by women.

*b.* ,, *buah belimbien* ,, ,, ,,

*c.* Tanjong *isang lasong* ,, ,, ,,

*d.* Kanowit *buah livong lasong* ,, ,, ,,

*e.* Bakatan *lungin*, a pair of brass ear-drops worn by women.

*f.* Kyan *buah livong batu jela*, a pair of ear-drops of serpentine and horn worn by women.

## Plate IV.

Fig. 8. × ½ linear.

*a.* Sea-Dyak *kenawieng*, ear-pendants of brass worn by men.

*b.* Sea-Dyak *grunjong ikat*, earrings worn by men.

*c.* „ „ *grunjong buri*, „ „ „ „

Fig. 9. × ⅓ linear.

*a.* Kenyah *bula wai*, ear-pegs carved from casque of Rhinoplax vigil.

*b.* Kyan *udang betelu* „ „ „ „

*c.* Skapan *udang*, a pair of canines of Felis nebulosa, worn as ear-pegs.

*d.* Malay *subang*, a pair of ear-plugs worn by women.

*e.* Murut *oul gading*, a pair of ear-plugs worn by men.

*f.* Sea-Dyak *tensa pending*, a pair of ear-plugs worn by women.

## Plate V.

Fig. 10. × ⅛ linear.

*a.* Sea-Dyak *simpai tapang*, three wooden armlets worn by men.

*b.* Sea-Dyak *gerang giring*, brass anklets worn by women.

*c.* Kyan ivory armlet worn by chiefs.

*d.* Sea-Dyak *tumpa sidieng*, brass bracelets worn by women.

Fig. 11. × ⅛ linear.

*a.* Sea-Dyak *tuchong simpai*, shell armlet worn by men.

*b.* Sea-Dyak *selong* brass wire leglets worn by women.

*c.* Sea-Dyak *tumpa gelong*, brass wire armlets worn by men.

*d.* Sea-Dyak *engkrimu*, leglets of rattan and brass annuli worn by men.

## Plate VI.

Fig. 12. × ½ linear.

*a.* Sea-Dyak *entelo*, bead girdle worn by women.

*b.* Sea-Dyak *tali mulong*, brass chain band worn by women.

*c.* Sea-Dyak *senawir*, brass girdle with silver coins worn by women.

*d.* Tanjong *takup*, shell vine leaf and bead string worn by little girls.

Fig. 13. × ½ linear.

*a.* Sea-Dyak *rawai*, corset.

*b.* ,, ,, *rawai tinchin*, corset.

*c.* Land-Dyak *s'ladan*, corset.

## Plate VII.

Nat. size

Fig. 1. Seal of Sea-Dyak *tinchin bekubun*, brass finger ring.

Fig. 2. Sea-Dyak *tinchin suran* brass finger ring A. front view B. side view.

Fig. 3. ,, ,, ,, ,, ,, ,, ,, ,, ,,

Fig. 4. ,, ,, ,, ,,

Fig. 5. ,, ,, ,, ,,

Fig. 6. ,, ,, ,, ,,

Fig. 7. ,, ,, ,, ,,

Fig. 8. ,, ,, ,, ,,

## Plate VIII.

Fig. 1. Dusun wooden comb worn by women. Nat. size

Fig. 2. Kadyan *subang*, wooden ear-plug worn by women. Nat. size

Fig. 3. ,, ,, ,, ,, ,, ,, Nat. size

Fig. 4. Murut *oul buluh*, bamboo ear-plug worn by men. Nat. size

Fig. 5. Modern Venetian bead of glazed clay. × 2

Fig. 6. Antique bead, known as *klam batang umar*, blue glazed clay with red pattern. Nat. size

Fig. 7. Antique bead known as *klam uit*, black with yellow stripes. Nat. size

Fig 8. Antique bead known as *klam buang kowit* of green glass with red and yellow circles. Nat. size

Fig. 9. Antique bead known as *klam dian*, of blue glass, fluted. Nat. size

Fig. 10. Brunei Malay *ka'bumban*, silver-gilt button. Nat. size

Fig. 11. Uma Kelap head ring of rattan work. × ½

Fig. 12. Sea-Dyak *tenklai lengan*, rattan bracelet. × ¾

Fig. 13. (A. B.) carvings on Kyan ivory bracelet. Nat. size

Fig. 14. Sea-Dyak *langgu temaga*, brass earring worn by men. Nat. size

Fig. 15. Diagrammatic representation of the links in Sea-Dyak *tali mulong*, chain girdle.

Fig 16. Ditto of Dusun chain girdle.




*Fig. 1.*




*Fig. 2.*




Fig. 3.



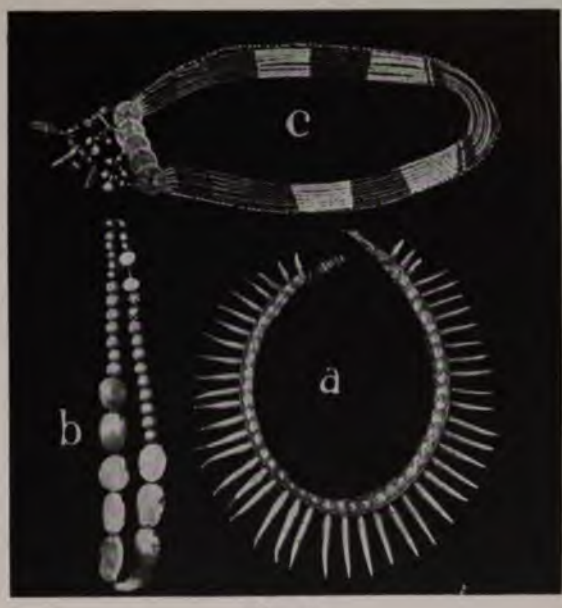



*Fig. 4.*

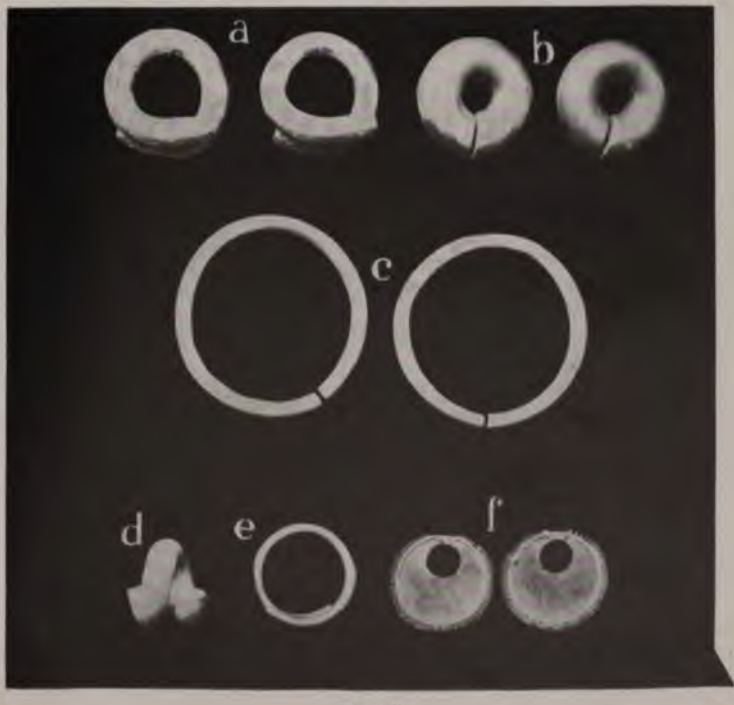



*Fig. 5.*






*Fig. 6.*




*Fig. 7.*






*Fig. 8.*

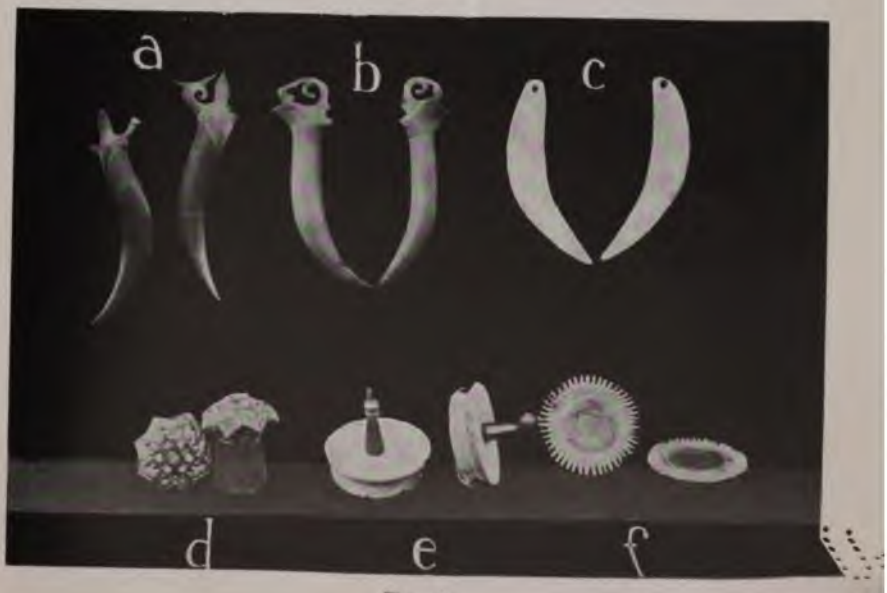



*Fig. 9.*






*Fig. 10.*

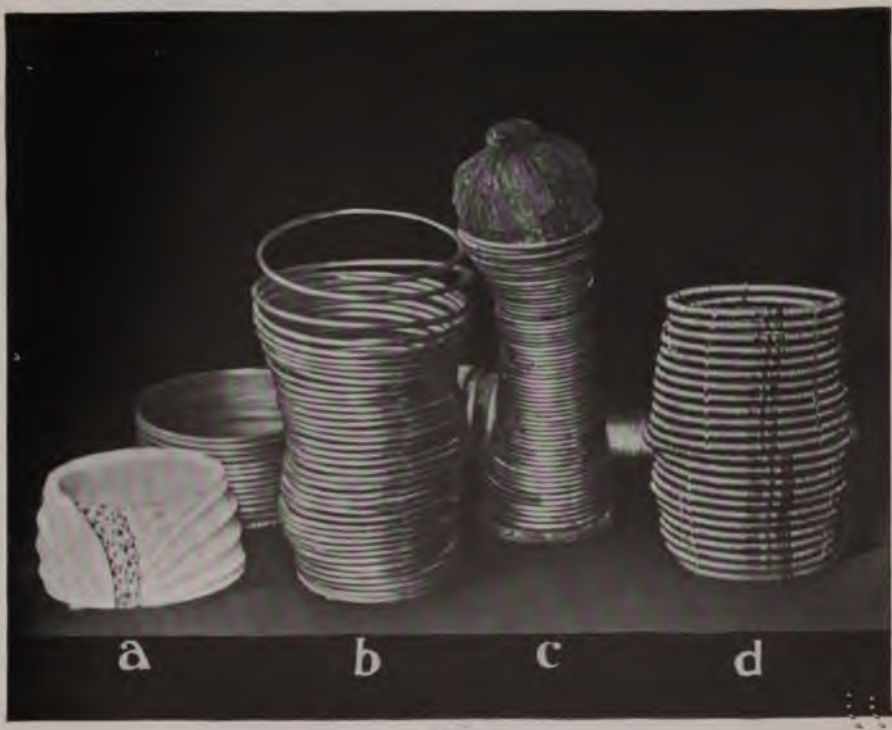



*Fig. 11.*



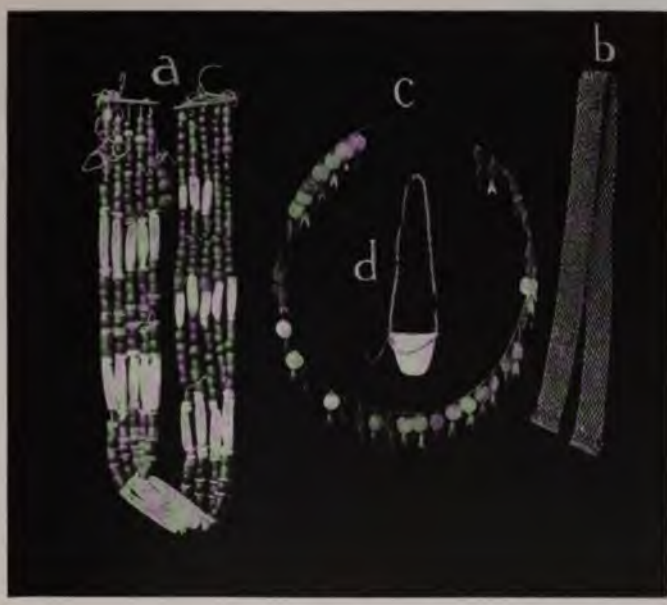



*Fig. 12.*




*Fig. 13.*



A



FIG 2

B





A



B

FIG. 3



FIG. 4



FIG. 7



FIG. 8



FIG. 1



FIG. 5



FIG. 6





FIG 1



FIG. 4





FIG. 6

FIG 5



× 2



FIG. 7



FIG. 8



FIG 9



A



FIG. 10



B

FIG. 13



FIG 14

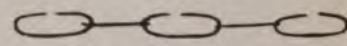
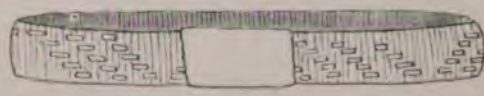


FIG. 16

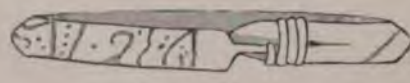


× ½

FIG 11



FIG 2



× ¼

FIG. 12



FIG 3

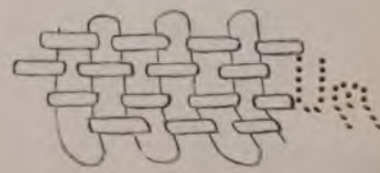


FIG. 15

[illegible]

STRAITS BRANCH

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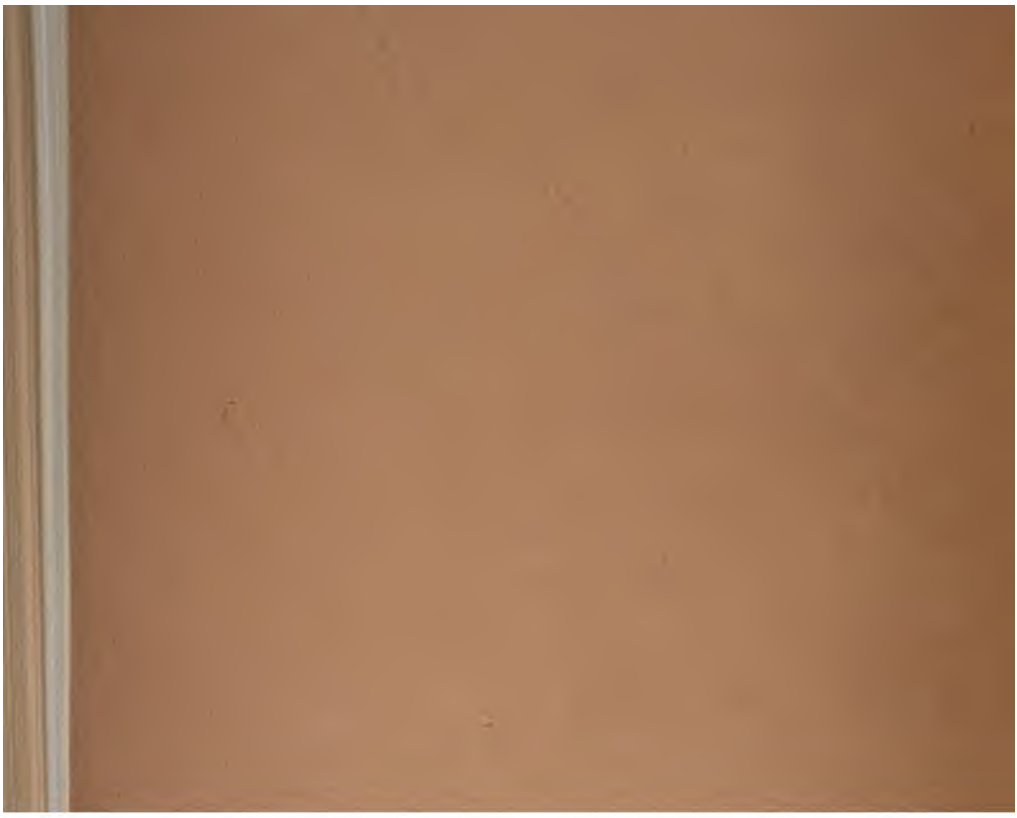
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| * Young, H. S., F.C.S. | Bau, Sarawak. |

# PROCEEDINGS

**of the**

# Annual General Meeting.

---

The Annual General Meeting was held January 23rd, 1905.

Present. Right Reverend BISHOP HOSE (President) Hon. W. R. COLLYER I.S.O., Dr. HANITSCH, Mr. G. MAXWELL, Mr. BARTLETT, Mr. P. J. BURGESS, Mr. C. B. KLOSS, Mr. BROCKMAN, Mr. W. G. St. CLAIR, Mr. C. J. SAUNDERS, Mr. MAKEPEACE, Mr. WATKINS, Mr. V. FLOWER, Mr. H. N. RIDLEY.

The minutes of the last General Meeting were read and confirmed.

The reports of the Council and Treasurer were laid on the table and their adoption moved by Mr. C. J. SAUNDERS seconded by Mr. G. MAXWELL and they were unanimously adopted.

The members elected by the Council for the previous year were formally confirmed in their election by the meeting.

The Officers and Council for the new year were then elected viz. :

*President*: Right Reverend Bishop HOSE.
*Vice President for Singapore*: Hon. W. R. COLLYER.
*Vice President for Penang*: Hon. J. K. BIRCH.
*Hon. Secretary*: H. N. RIDLEY.
*Hon. Treasurer*: Dr. HANITSCH.

*Councillors*: Mr. W. G. St. CLAIR, Mr. G. MAXWELL, Mr. C. B. KLOSS, Mr. V. FLOWER, Mr. A. KNIGHT.

The President proposed that H. E. the Governor should be asked to become Patron of the Society which was unanimously agreed to.

Mr. St. CLAIR proposed a vote of thanks to the Bishop, as President for the previous year which was carried unanimously.

The President proposed a vote of thanks to the Hon. Secretary and Treasurer which was carried unanimously.

The Meeting then adjourned.

# Annual Report for 1904.

The Council are pleased to report again that the affairs of the Society are in the matter of its finances in an extremely satisfactory condition.

Two numbers of the Journal were published during the year, and two more are in the printers' hands. Of the two published, one by Mr. Shelford contains a well illustrated account of the musical instruments of Borneo in the Sarawak Museum. Another catalogue of the personal ornaments of the Dyaks by the same author has been received, with a series of photogravures and other illustrations. The supply of interesting papers by various members of the society dealing with Ethnological, Natural History and Geographical subjects relating to the Malay Peninsula and its neighbourhood is greater now than in former years, and there is little difficulty in producing Journals worthy of the Society.

The Map of the Malay Peninsula is now nearly out of print, and it will be necessary shortly to produce a new edition. Some materials for this have already been collected, and the Council will be glad to receive any further materials additions or corrections.

The Council have to express the greatest regret for the death of two members who have always taken a prominent part in the affairs of the society and were for a considerable time members of the council, Mr. C. W. Kynnersley and Mr. H. Eschke. The first-named gentleman was Vice-President for Singapore till he left for England in April, and had written several papers for the Journal, one of which dealing with his travels in Southern Siam has just been printed. Mr. Eschke was also a member of the council for some years,

[redacted]

## HONORARY TREASURER'S ACCOUNT FOR THE YEAR 1904.

| | $ | c. | $ | c. |
|---|---|---|---|---|
| Balances brought forward from 1903 :— | | | | |
| Mercantile Bank, Fixed Deposit ... ... | 2700 | ... | | |
| Chartered Bank, Fixed Deposit ... ... | 1000 | ... | | |
| Mercantile Bank, Current Account ... ... | 549 | 29 | | |
| Chartered Bank, Current Account ... ... | 347 | 27 | | |
| | | | 4596 | 56 |
| Receipts in 1904 :— | | | | |
| Subscription for 1902 | 5 | ... | | |
| do. „ 1903 | 35 | ... | | |
| do. „ 1904 | 440 | ... | | |
| do. „ 1905 | 15 | ... | | |
| Life Membership ... | 100 | ... | | |
| Sale of Journals .. | 370 | 07 | | |
| Sale of Maps ... ... | 730 | 83 | | |
| Sundry Recoveries ... | 2 | ... | | |
| Bank Interst .. ... | 153 | 88 | 1851 | 78 |
| | | | 6448 | 34 |

| | $ | c. | $ | c. |
|---|---|---|---|---|
| Payments in 1904 :— | | | | |
| American Mission Press ... | 379 | 85 | | |
| Thacker & Spink ... ... | 123 | 21 | | |
| Book-binder ... .. | 30 | 45 | | |
| Clerk's Salary ... . | 60 | ... | | |
| Peon's Salary ... ... | 24 | ... | | |
| Postages and Petties... ... | 51 | 24 | | |
| | | | 668 | 75 |
| Balances carried forward :— | | | | |
| Mercantile Bank, Fixed Deposit ... ... ... | 2700 | .. | | |
| Chartered Bank, Fixed Deposit ... . .. | 2300 | .. | | |
| Mercantile Bank, Current Account ... ... ... | 753 | 80 | | |
| Chartered Bank, Current Account ... .. ... | 25 | 79 | 5779 | 59 |
| | | | 6448 | 34 |

Audited and found correct

P. J. BURGESS.

R. HANITSCH,

*Honorary Treasurer, Straits Branch, Royal Asiatic Society.*

# The Gesneraceae of the Malay Peninsula.

By H. N. RIDLEY.

There is perhaps no order of plants in the Malay Peninsula which contains so large a percentage of ornamental flowering species, as that of the Gesneraceæ or Cyrtandreæ. Few indeed are those which either in foliage or more often in flower do not strike the eye of a botanist in our hill woods. Unfortunately a considerable number are by no means easy of cultivation and among these the most difficult are the small half-shrubby kinds, Didymocarpi and Didissandras which possess the most beautiful flowers of every colour from white to red, blue and yellow. A bank covered with a mass of *Didymocarpus quinquevulnera* as it may be seen along the Tras route or in the Pahang woods is worth going a long way to see.

The number of species recorded in this paper as occurring in the Malay Peninisula is 121 and it is probable that at least as many more remain uncollected, as several of the genera are remarkably local, so that each mountain ridge may be expected to produce one or more species. In the Flora of British India the number of species recorded from the Malay Peninisula was 22, but at the time that that part of the work was published (1884) almost all that were known were from Penang, Singapore and Malacca. Since then I have myself collected a large number, in Perak, Pahang, Selangor and elsewhere. Mr. Curtis obtained a very large series of new species from the limestone Islands of Lankawi, a very rich district, and I have also seen the collections of Scortechini, Kunstler and Wray from the Perak Hills, loaned to me by Dr. Prain of the Calcutta Gardens. In 1895 I published in the Linnean Society's Journal a paper on Cyrtandraceæ Malayenses (vol. XXXII p. 497) containing a list of 72 species, all that were known at the time.

## GENERA.

*Æschynanthus*, an epiphytic genus with plumed seeds easily drifted by the wind, is the most widely diffused genus in the surrounding islands. One Borneo-Siamese species occurs as far south as Lankawi, several occur in Sumatra and Borneo as well as the Peninisula, and the number of endemic species is small compared with other genera.

*Agalmyla* is a small genus of climbers, of which one species is abundant in the Perak hills, and Sumatra and Java. It has also plumed seeds.

*Didissandra* as laid down by Mr. Clarke comprised all *Didymocarpi* as defined by him which had four complete stamens instead of two. I have preferred to separate from *Didymocarpus* the plants with short-tubed flower, and very short stamens with a distinctly longer style. This principle excludes also from *Didissandra* several of Mr. Clarke's sections. Such plants as *D. ornata* of Borneo are more nearly allied to Boea and Paraboea than to *Didymocarpus*. *Didissandra* thus as far as regards the Malay Peninsula includes two sections, which might almost be made distinct genera: the section *Cyrtandroides* (Clarke) tall shrubby plants with distant leaves and flowers in the lower axils, two species; and the very distinct section *Speciosæ*, with 71 species of small shrublets with crowded leaves and large and showy blue, white or yellow flowers, a very distinct group, of which I have not seen any species even from Sumatra or Borneo. In some respects they approach the section *Heteroboea* of *Didymocarpus*, and one very charming white flowered plant *Didymocarpus venustus* possesses all the characteristics of this group of *Didissandra* except that it has but two stamens.

*Didymocarpus* even excluding the genera *Loxocarpus* and *Paraboea* contains a considerable variety of forms but it is very difficult at present to split the genus further. It includes all the long tubed plants with two filiform stamens and a simple stigma. Among the aberrant forms we find *D.*

*corchorifolia* a stout much branched woody shrub, with flowers of the form of a snapdragon (*Antirrhinum*) the upper and lower lips of the corolla being pressed together, and some species such as *D. pumila* quite dwarf and stemless with short flowers, but with the pistil and stamens of other species. *D. lilacina* from Pahang is also quite abnormal having very small flowers borne on a short peduncle adnate to the leaf petiole. This would perhaps be better made into a distinct genus; many of the other species however fall into natural groups, such as the section *Heteroboea*, shrublets with crowded rough leaves, and large trumpet-shaped flowers slender axillary peduncle. The plants of this section are almost confined to the Peninsula disappearing north of Penang, and less abundant in Borneo and Sumatra.

*Didymocarpi* seem more scanty in Borneo than in the Malay Peninsula, and the sections most abundant there are those that are rare here. A group of almost stemless little plants, lanceolate or oblanceolate sometimes peltate leaves and small violet or white flowers (§ *Kompsoboea* of Clarke excluding *D. Kompsoboea* a plant closely allied to *D. platypus*) is represented by *D. heterophylla*, *D. perdita* etc., in the Peninsula where they are characteristic of the low country or bases of the hills, and several species occur in the Natunas and Lingga Island. The lowland *Salicinæ* with narrow crowded leaves sometimes deeply cut occur in Borneo as far as Labuk Bay and in Lingga. These two groups are absent from the hill forests of the interior above 1,000 feet elevation.

The species of this genus are as local in their distribution as those of *Didissandra*; of forty-four species only four have been met with outside the Pennisula and most of the endemic species are only at present known from single localities of small area.

*Chirita* is a genus also of somewhat heterogeneous nature, distinguished by its bifid style. The flowers are in many species of an azure blue, an unusual color in the order, and frequently have the mouth of the corolla

tube bearded with yellow hairs. The headquarters of the genus is India and Southern China, but a number of species occur in Java and Sumatra, mostly in the limestone districts. Six species occur in the Peninsula, five of which are endemic and one gets to Siam.

*Loxocarpus*, a small genus referred to *Didymocarpus* as a section by Mr. Clarke, seems sufficiently distinct in its short tubed and short stamened flowers and horn-like capsule. All the species are closely allied. There are about 7, of which three endemic ones occur in the Malay Peninsula, the remainder in Borneo.

The next three genera comprise the plants with short tubed flowers, 2 very short stamens with longer style, and narrow cylindric fruit. *Paraboea* is merely distinguished from *Boea* by its capsule not twisting when splitting. The genus was amalgamated with *Didymocarpus* by Clarke, but should certainly be kept separate. In *P. cordata* and two allied species, the corolla is campanulate. The other species have hardly any tube to the corolla at all. This latter section is confined to limestone rocks, while *P. cordata* and its allies are found on granite or sandstone. The flowers are all small and white or at most tinted with pink. There are about 20 species known, some from Borneo and Siam. All the 12 Malay Peninsula species are endemic.

*Boea* resembles *Paraboea* except that the capsule is spirally twisted in dehiscing. It includes about 22 species, ranging India, Khasiya hills, through Burma, China, Formosa and Cochin China, the Malay islands to New Guinea, and the Philippines to Australia and New Ireland. All the species known to me inhabit limestone rocks, except *B. elegans*, which grows on the granite precipices of Kedah Peak. They are usually half-shrubby plants with silvery white leaves covered with felted silky hairs. There are two sections, one has usually tall leafy stems rising from a large rosette of leaves, with a woody stem below which grows in clefts of rocks. The flowers

are often very large quite flat, azure blue or rose color, and very beautiful. The other section has a slender peduncle rising from the tuft of leaves, as in *Paraboea*, and the leaves are often covered with red or ochre wool beneath, the flowers are smaller often quite small, white rose or lilac. All the species recorded from the Peninsula, 9 in number, are endemic.

*Phylloboea* differs only from *Boea* in the calyx being trifid instead of five lobed. Two species are known, one from Burma and the endemic species of the Lankawi islands. The latter has rather weak leafy stems, with silvery leaves like those of Boea, and purple blue flowers.

*Boeica* is a small genus of five species differing from *Paraboea* only in having four complete stamens. Four of the species which are half shrubby plants with much branched cymes on a long slender peduncle, are found in India and Burma. The only one from our region is a very small plant with a short peduncle bearing 2 or 3 pink flowers which occurs in the Lankawi islands.

In the remaining genera of the order the fruit is not a long slender beaked capsule but oblong, or almost globose, or a pyxis.

*Orchadocarpa* is a monotypic genus, containing a single species, a dwarf plant with a lax cyme of lilac flowers, the sepals free to the base, longer than the small oblong hairy capsule. It seems most nearly allied to *Loxonia* a native of Java and Sumatra.

*Rhyncoglossum* is a weak erect almost glabrous herb with a raceme of blue flowers. Two species are known, one from the Philippines, the other occurring in India and Burma and through all the Malay islands to the Philippines. It seems to be very common throughout this region but is rare in the Peninsula.

*Epithema* is a small genus of soft limestone rock herbs with a tuft of very small blue or white flowers in a head, and a

pyxis-like capsule, opening by a cap. The species are very closely allied and perhaps might all be classed as one somewhat variable one, except a single African species. The others extend over all the islands and into India, and our single species occurs wherever there are limestone rocks.

*Monophyllaea* is also a limestone rock genus remarkable for possessing a single often very large leaf, and a scorpioid cyme or panicle of very small white flowers. There are 9 species known ranging from Southern Siam to Sumatra, Borneo and Java. Two species occur in the Peninsula, one also in Java and Sumatra, and the other endemic.

*Stauranthera* is a small genus of 3 species of soft herbs with blue or violet flowers. Two species occur in the Peninsula and also in Burma and Assam, the third species in the genus is Javanese.

*Rhynchotechum* is a genus of 9 species of which 6 are Indian and Burmese, two occur in Java one of which is not rare in the hills of the Peninsula. It is a small shrub with panicles of small cream white flowers.

*Cyrtandromœa* are shrubby plants of rather coarse habit occurring on banks in woods. They have white flowers protruding from a red calyx, rather showy. Nine species are recorded from Tenasserim and the Nicobar islands to Sumatra and Java. Three species occur in the Peninsula one of which is found also in Sumatra.

*Cyrtandra* is a large genus of 170 species occurring from the Sandwich islands through the Malay islands into the Peninsula as far north as Penang. Abundant in the Polynesian and Malay islands, they are scanty in the Peninsula where we have only 7 kinds of which four are endemic. The other three occur in Sumatra also. They are shrubby plants with heads of yellow white or red flowers from the axils of the lower leaves. The fruits are sausage shaped corky berries, with minute seeds.

They inhabit dense forests often forming large patches on the ground. A few are however epiphytic.

Summary of Distribution.

There are at present known 121 species of the order in the Peninsula, belonging to 18 general. Of these 95 are endemic, 7 occur also in Burma and Siam, 17 occur also in Sumatra and 9 in Borneo, 5 only in Java, only a single species occurs in India beyond Burma, and only 4 in the islands further east than Java.

Habitats. The greater number of species are hill plants growing on rocks or banks at an altitude of from 1 to 6000 feet elevation. The species occurring in the low-lying country are few, one or two species of *Didymocarpus* chiefly of the *Heteroboea* section and some *Cyrtandras* and *Stauranthera*. Besides which are several of the epiphytic *Aeschynanthi*. All these lowland plants disappear as one ascends the hills and are replaced by a different series. The limestone rocks are very prolific in species and several genera are quite peculiar to them. Such are *Boea*, *Monophyllæa*, *Epithema*, *Phylloboea*.

| Genus. | Distribution. | No of Species. |
|---|---|---|
| Aeschynanthus ... | Indo-Malaya, Siam, Hongkong ... | 70 |
| Agalmyla ... ... | Malaya ... ... ... | 3 |
| Didissandra ... ... | „ ... ... ... | 20 |
| Didymocarpus ... | Indo-Malaya ... ... ... | 100 |
| Chirita ... ... | Indo-Malaya, China ... ... | 50 |
| Loxocarpus .. ... | Malay Peninsula and Borneo ... | 7 |
| Paraboea ... ... | Siam, Malay Peninsula, Borneo ... | 20 |
| Bœa ... ... | India, Siam, Malaya, China ... | 22 |
| Phylloboea ... ... | Siam ... ... ... | 2 |
| Bœica ... ... | Burma, Malay Peninsula ... | 5 |
| Orchadocarpa ... | Endemic ... ... ... | 1 |
| Rhynchoglossum ... | Tenasserim to Malay Islands ... | 2 |
| Epithema ... ... | Trop. Africa, India, Malaya ... | 6 |
| Monophyllaea ... | Siam, Malay Islands ... ... | 9 |
| Stauranthera ... .. | Assam to Java ... ... | 3 |
| Rhynchotecum ... | India to Philippines ... ... | 9 |
| Cyrtandromœa, ... | Tenasserim, Nicobars, and Islands | 9 |
| Cyrtandra ... ... | Malay Peninsula and Islands to Polynesia ... ... | 170 |

| No. of Mal. Pen. Species. | Endemic. | Burmah and Siam | Sumatra. | Borneo | Java- | Other Islands. |
|---|---|---|---|---|---|---|
| 11 | 3 | 1 | 5 | 5 | 2 | 1 |
| 1 | ... | ... | 1 | ... | 1 | ... |
| 13 | 13 | .. | .. | ... | ... | ... |
| 44 | 40 | ... | 3 | 2 | ... | 1 Lingga, |
| 6 | 5 | 1 | ... | ... | ... | ... |
| 3 | 3 | ... | ... | ... | ... | ... |
| 12 | 12 | ... | ... | ... | ... | ... |
| 9 | 9 | ... | ... | ... | ... | ... |
| 1 | 1 | ... | .. | ... | ... | .. |
| 1 | 1 | ... | ... | ... | ... | ... |
| 1 | 1 | .. | ... | ... | ... | ... |
| 1 | ... | 1 | 1 | ... | 1 | Amboina Timor Philippines. |
| 1 | ... | ... | 1 | 1 | 1 | ... |
| 2 | 1 | .. | 1 | ... | 1 | ... |
| 2 | ... | 2 | ... | ... | ... | ... |
| 1 | ... | 1 | 1 | ... | 1 | ... |
| 3 | 2 | .. | 1 | ... | ... | ... |
| 7 | 4 | 1 | 3 | 1 | 1 | 1 |

## GESNERACEÆ.

Herbs or shrubs, usually pubescent, leaves opposite or apparently alternate, one of each pair being much reduced, simple entire or lobed. Inflorescence axillary, cymose or racemose or panicled, bracts small or large, sepals 5 often connate, corolla tubular or campanulate, more or less distinctly bilabiate, 5 lobed, lobes oblong or rounded. Stamens 4 or 2 rudimentary or absent, didynamous when four, filaments linear or filiform, or short and thick anthers linear or oblong, or scutiform connivent in pairs, 2 celled, cells splitting on the inner face. Disc cylindric or annular or absent, ovary cylindric or oblong. Style slender simple, stigma capitate, cordate or bilobed. Fruit a capsule linear cylindric fusiform, or oblong, splitting dorsally, seeds very numerous minute, plumed in epiphytic species, elliptic and not plumed in terrestrial species; or a fleshy berry (*Cyrtandra.*)

Species about 600, all tropical species with a few in subtropical climates.

I. Fruit capsular cylindric.

A. Seeds plumed.

| | |
|---|---|
| Stamens 4 perfect | 1 *Æschynanthus.* |
| Stamens 2 perfect | 2 *Agalmyla.* |

B. Seeds not plumed.

Corolla infundibuliform, filaments long filiform.

| | |
|---|---|
| Stamens 4 | 3 *Didissandra* |
| Stamens 2. | |
| Stigma entire capitate obovate | 4 *Didymocarpus.* |
| Stigma bifid | 5 *Chirita.* |

Corolla tube short campanulate.

Stamens 2.

| | |
|---|---|
| Capsule conic | 6 *Loxocarpus.* |
| Capsule cylindric not twisted | 7 *Paraboea.* |
| Capsule cylindric twisted | |

| | |
|---|---|
| Calyx 5 lobed | 8 *Boea.* |
| Calyx 3 lobed | 9 *Phyllobœa.* |
| Stamens 4 | 10 *Boeica.* |
| II. Capsule ovoid or ellipsoid. | |
| Stamens 2. | |
| Sepals free to base | 11 *Orchadocarpa.* |
| Calyx campanulate, half lobed | 12 *Rhyncoglossum.* |
| Stamens 4. | |
| Capsule circumsciss | 13 *Epithema.* |
| Capsule irregularly splitting | |
| Herbs with one leaf, Flowers minute | 14 *Monophyllæa.* |
| Herb with several alternate leaves, Flowers large | 15 *Stauranthera.* |
| Shrubs leafy. | |
| Calyx split to base, Flowers small | 16 *Rhynchotechum.* |
| Calyx tubular shortly lobed, Flowers large | 17 *Cyrtandromœa.* |
| III. Fruit a sausage shaped berry. | |
| Stamens 2 | 18 *Cyrtandra.* |

*Æschynanthus*, Jack.

Epiphytes or rock plants, with slender creeping or erect half woody stems, leaves opposite, or whorled fleshy or coriaceous entire, ovate or lanceolate. Flowers large usually showy red yellow or green in axillary or terminal heads, pedicelled. Bracts ovate or lanceolate small. Calyx tubular or campanulate sub-entire or more or less lobed, or sepals free to the base. Corolla tubular curved, dilated above shortly 2 lipped; upper lip of 2 lobes erect lower of 3 lobes deflexed. Stamens 4 perfect didynamous usually exsert, anthers connivent in pairs, loculi oblong parallel, ovary superior, with a short cup-shaped disc at the base. Style as long as stamens or shorter. Stigma dilate, or peltate. Capsule long cylindric base usually empty and narrower, (gynophore) 2 valved

loculicidally. Seeds innumerable minute oblong rugose with one or more hyaline scabrid hairs from near the hilum, and one from the apex.

Species 64 India, Malaya and Hongkong. Chiefly Malayan.

*Polytrichium*, seeds with a plume of hairs at one end, a single hair at the other.

| | | |
|---|---|---|
| Calyx tube very short | *1* | Æ. *Motleyi* |
| Sepals free to base | *2* | Æ. *marmorata* |

*Haplotrichium*, seeds with a single hair at each end

| | | |
|---|---|---|
| Calyx deeply cut into lobes. | | |
| Leaves in whorls | *3* | Æ. *speciosa* |
| Leaves in pairs. | | |
| Corolla tube long 2-3 inches | | |
| Sepals hairy | *4* | Æ. *longiflora* |
| Sepals glabrous | *5* | Æ. *Perakensis* |
| Corolla tube short thick under an inch | *6* | Æ. *Hildebrandtii* |
| Erect woody epiphytes | | |
| Calyx tubular, lobes short, | *7* | Æ. *Rhododendron* |
| Calyx tubular lobes long acute | *8* | Æ. *longicalyx* |
| Creeping epiphytes, flowers axillary or terminal | | |
| Leaves glabrous | *9* | Æ. *Lobbiana* |
| Leaves pubescent | *10* | Æ. *radicans* |
| Calyx cup-shaped small green | *11* | Æ. *Wallichii* |
| Calyx widely campanulate red | *12* | Æ. *obconica* |

*1.* Æ. *Motleyi*, Clarke, Dec. Prodr. Ser. II. 5. p. 20. Epiphytic erect or branches pendulous about 12-18 inches long woody. Leaves opposite lanceolate or ovate lanceolate acute edges undulate or not, fleshy, light green above, pink beneath; 3-4 inches long, $\frac{1}{2}$-$1\frac{1}{2}$ inch wide, petiole $\frac{1}{4}$ inch long. Flowers solitary or few, axillary pendulous, pedicel $\frac{1}{4}$ inch long or less. Calyx tube short $\frac{1}{8}$ inch

lobes linear ¾-1 inch long glabrous blackish red. Corolla ¾-1¼ inch long dilated upwards, lobes rounded sparingly hairy, base of tube dilate, light green, tips of petals dark purple brown. Stamens brown, filaments glabrous. Ovary oblong with 5 glandular patches at the base. Style very short cylindric, stigma capitate. Capsule cylindric narrowed at the tip 9-13 inches long, seed $\frac{1}{16}$ inch long oblong blunt pustular, plume ½ inch long.

Singapore Chanchu Kang (Ridley 6244), Kranji. Johor, Batu Pahat. Pahang, Pulau Manis, Pahang River, (Ridley 2151). Perak, Larut Hills, Kurau (Wray 245); Batang Padang (Wray 1475), Kinta at Goping (King's Coll. 4463).

Distrib. Borneo, Sumatra, Ceram.

2. *Æ. marmorata*, T. Moore, Pax and Fl. Gard. iii. (1852-1853) p. 56.

Epiphyte with erect woody stems about 12 inches tall. Leaves fleshy lanceolate acute narrowed at the base 2-3 inches long ½ inch wide, above light green with lighter variegations, beneath dull green with transverse purple bars, petiole ¼ inch long. Flowers solitary or few together axillary, pedicels slender, ¼ inch long, calyx tube very short (hardly any) lobes linear pubescent, ⅜ inch long corolla tube little more than an inch long dilated upwards, curved lobes rounded pubescent green with brown bars in the mouth. Stamens 1½ inch long, filaments hairy. Style hairy, stigma bilobed. Capsule 6 inches long, rather thick. Seed oblong pustular, plume ½ inch long.

N. E. Brown, Gard. Chron. 18, 1882, p. 787, Clarke lc 38.

*Æ. Zebrina*, Van Houtte, Cat. 1851.

Penang Government Hill (Curtis 2142, 1700); Lankawi Islands, Gunong Raya (Curtis 2142).

Distrib. Mergui, Siam.

*3. Æ. speciosa*, Hook fil. Bot. Mag. t. 4320.

Shrubby with erect rather stout stems 12 inches tall. Leaves fleshy lanceolate acute whorled 4 or 5 to a whorl, edges smooth or undulate 3-6 inches long $\frac{3}{4}$-$1\frac{3}{4}$ inch wide petiole $\frac{1}{8}$-$\frac{1}{4}$ inch long. Flowers subterminal clustered 10 or more together large and showy. Bracts lanceolate linear hairy $\frac{1}{4}$ inch long. Pedicels slender $\frac{1}{2}$ inch long. Calyx lobes linear free to base pubescent $\frac{1}{2}$ inch long. Corolla tube 3 inches long narrow cylindric at base filled and curved at upper part, lobes rounded, all pubescent. Stamens $\frac{1}{2}$ inch longer, filaments slender slightly pubescent. Style stout pubescent.

Paxt. Mag. 14, 199. Fl. des Serres Ser. 1 t. 267. Miq. Fl. Ind. Bat. 2718. Clarke lc p. 33.

Perak, Bruseh near Bidor (W. G. Napier); Selangor Bukit Hitam (Kelsall); Tomoh, (Machado).

Distrib. Java, Borneo.

*4. Æ. longiflora*, De C. Prodr. IX. p. 262.

Stem erect woody over a foot tall. Leaves in distant pairs opposite ovate acuminate shortly narrowed to base, fleshy 5 inches long by 2 inches wide, petiole $\frac{1}{2}$ inch long. Flowers several terminal in a cluster, pedicels $\frac{1}{2}$ inch long hairy. Calyx lobes narrowly linear hair $\frac{1}{2}$ inch long, free nearly to the base. Corolla tube 3 inches long base cylindric above dilated scarlet hairy lobes short rounded. Stamens, filaments slender pubescent $\frac{3}{4}$ inch longer than corolla. Style rather stout. Capsule cylindric narrow over 6 inches long.

Hassk. Cat. Hort. Bogor, Ed. 2.154; Hook. Bot. Mag. t. 4328. Vriese Pl. Ind. Bat. Reinwdt. p. 9. Fl. des Serres Ser. 1. t. 288. Paxt. Mag. 15, p. 25. Miq. Fl. Ind Bat. 2 p. 717. Clarke lc p. 32.

*Lysionotus longiflora*, Bl. Bijdr. p. 766.

Pahang, and trees along the Tahan River rare, (Ridley 2167).

Distrib. Java.

5. Æ. *Perakensis*, Ridl. Journ. Linn. Soc. XXXII. 499.

Shrubby epiphyte, stems about 2 feet long. Leaves coriaceous lanceolate acuminate, 3-7 inches long, 1-2 inches wide, nerves inconspicuous. Flowers in a terminal fascicle, on pedicels nearly half an inch long. Bracts subulate $\frac{1}{8}$ inch long. Sepals linear $\frac{1}{4}$ inch long glabrous, free to the base. Corolla 2-2$\frac{1}{2}$ inches long, tube narrow at the base dilate upwards curved nearly glabrous deep red lobes rounded. Stamens $\frac{3}{4}$ inch longer filaments glabrous or sparingly pubescent. Fruit over a foot long. Seed narrowly oblong pustular with a single hair at each end.

Perak, Larut Hills 5500 feet (Ridley, Curtis 11447); Thaiping (King's Coll. 8314), (Kunstler 2337).

Endemic.

6. Æ. *Hildebrandtii* Hemsley, Bot. Mag. t.7365. Shrubby epiphyte, with the branches about 6 inches long often rooting. Leaves in distant pairs ovate acute with a rounded base, $\frac{1}{2}$ inch long and as wide; fleshy sessile glabrous. Flowers few terminal on the ends of the branches, pedicels $\frac{1}{4}$ inch long. Calyx lobes free to base linear acuminate pubescent $\frac{1}{6}$ inch long. Corolla tube thick curved, little dilated $\frac{1}{4}$ inch long glabrous orange, lobes rounded short red pubescent, stamens shortly exsert hairy. Capsule 6 inches long, base narrowed sterile.

Pahang, K'luang Terbang, Gunong Benom, (Barnes). Perak, Larut Hills alt. 4500 (Ridley).

Distrib. Burma.

7. Æ *Rhododendron*, Ridley, Journ. Linn. Soc. vol. XXXII. p. 500. An erect epiphytic shrub 1-2 feet tall stems woody stout. Leaves opposite in distant pairs fleshy-coriaceous ovate acuminate 2 inches long 1$\frac{1}{2}$ inch wide, nerves inconspicuous, keel prominent. Flowers axillary and terminal several together, pedicels about $\frac{1}{2}$ an inch long, calyx tubular an inch long deep purple with short acute lobes glabrous. Corolla 3 inches long, tube thick dilated above glabrous lobes rounded oblong $\frac{1}{2}$ inch long pubes-

cent, deep red with three black streaks on the lower lobes. Stamens very shortly exsert, little longer than the corolla, pubescent. Capsule cylindric rather stout 4 inches long, base narrowed into a gynophore. Seeds with a single hair at each end; brown scabred.

Perak Larut Hills from 2500-6000 feet elevation (Ridley, Curtis 1311) Scortechini 58. 388. Plus River (Wray) Scortechini 468 b; 58 (King's Coll. 2332).

Endemic.

8. Æ. *longicalyx*, n.sp. Stems woody over a foot long. Leaves ovate acuminate thick fleshy 2-3 nches long 1-1½ inch wide glabrous, keel prominent, nerves obscure. Flowers terminal large, pedicels ½ inch long. Calyx elongate tubular glabrous 1¼ inch long red, with five long thin lanceate acute points ½ inch long. Corolla 3 inches long red with dark blotches in the mouth, glabrous outside, mouth pubescent, lobes rounded. Stamens nearly as long as the corolla, pubescent; style stout pubescent, stigma capitate.

Selangor Semangko Pass, (A. M. Burnmurdoch); Perak (Scortechini 36 a) Gunong Batu Putih (Wray 1636).

Endemic and rare.

8. *Æ. Lobbiana* Hook. Bot. Mag. t 4260.

Climbing epiphyte with slender stems rooting along tree trunks, leaves lanceolate or ovate lanceolate 1½ 2 inches long, ¼-¾ inch wide, glabrous shortly petioled, in pairs coreacious. Flowers in axillary and terminal fascicles, 3 to 5 together, pedicels slender ¾ inch long or less. Calyx tubular 1 inch long with very short lobes dark purple, thickly pubescent. Corolla tube 2 inches long thick curved lobes broad rounded, thickly pubescent deep red. Stamens barely exserted. Capsule 13 inches long cylindric on a gynophore. Seed very small oblong pustular with a hyaline mass at the hilum and a single long white hair at each end.

Fl. des Serres ser. 1, t. 246, Miq. Fl. Ind. Bat. 2,271 Clarke l.c. 44.

Singapore, Sungei Tengeh (Ridley 2710) Kranji (2706); Johor, Batu Pahat (Ridley), Gunong Pulai (King), Jambu Larang (Fielding); Malacca (Maingay), Mt. Ophir, Ayer Panas (Ridley 1572); Selangor, Pahang Track; Pahang, Pekan (Ridley), Kuantan (Durnford); Perak, Larut Hills to 5000 feet alt. (Curtis); (Scortechini 36 *a* 330 *b*,) Gunong Batu Putih; Sungei Ryah (Scortechini 39); Caulfields Hill (Scortechini 352) (Wray 873); Penang, Government Hill (Curtis); Kedah, Gunong Jerai, (Ridley 5513); Lankawi, Gunong Raya (Curtis 2503).

Distrib. Sumatra, Borneo and Java.

Common in mangrove swamps and forests. The leaves vary a good deal, those of mountain forms being fleshier smaller and more ovate than those of lower levels.

*10. Æ. radicans*, Jack, Trans. Linn. Soc. 14, p. 43: Calc. Journ. Nat. Hist. 4, p. 62.

Epiphytic or rupestrial, stems creeping and rooting at the nodes, hairy, several feet long. Leaves ovate obtuse, base broad, shortly petioled hairy ½-1¼ inch long, ½-¾ inch wide. Flowers axillary 1-2 together, pedicel ½ inch long. Calyx tubular hairy deep red, lobes obtuse or subacute ¾ inch long. Corolla thick curved and hairy red, lobes subacute glabrescent within. Stamens hardly exsert, filaments glabrous. Capsule pubescent cylindric acuminate slender 10 inches long.

Spreng. Syst. 2,838; R. Br. Benn. Pl. Jav. Rar. p. 115; Ann. Sc. Nat. 2, vol. 13, p. 160; De Vriese Pl. Ind. Bat. Review p. 10; Miq. Fl. Ind. Bat. 2,720; Clarke l.c. p. 41.

*Trichosporum radicans*, Nees, Flora 1825, p. 144, Bl. Bijdr. p. 764.

Singapore, Bukit Timah (Ridley 2704), Kranji; Pahang, Tahan river (Ridley); Malacca, (Griffith, Cuming 2387); Sungei Rambai (Derry t205), Sungei Buluh; Sungei Ujong

(Cantley); Perak, Bujong Malacca (Ridley), Sungei Rayah (Scortechini 37), Tringganu, Bundi (Rostado).

Var. *lanuginosa*, calyx "green," densely white woolly as is the outside of the corolla tube; Perak (Scortechini 330*b*).

Distrib. Borneo, Sumatra.

On rocks and trees. Native name "Akar Burunas." The leaves used for poulticing for headaches.

*11. Æ. Wallichii*, R. Br. Benn. Pl. Jav. Rar., p. 116, Ann. Sc. Nat. 2, XIII, p. 160.

Stems rather slender woody glabrous. Leaves lanceolate or elliptic, acuminate narrowed at the base into the petiole 3 inches long. 1-1¼ inch wide, glabrous, petiole ¼ inch. Flowers few together subterminal pedicel ¼ inch long slender. Calyx small cup shaped green ¼ inch long, hairy almost entire. Corolla ¾ inch long, tube stout lobes rather large rounded red, hairy. Stamens included, filaments glabrous. Capsule 8 inches long narrow terete. Clarke l.c. 48.

Singapore (Wallich 798 A) Bukit Mandai, Chan Chu Kang, Kranji (Ridley); Johor, Tanjong Kopang (Ridley), Ulu Batu Pahat (Kelsall); Malacca, Mt. Ophir (Lobb); Perak, Bujong Malacca (Curtis).

Distrib. Sumatra, Borneo.

*12. Æ. obconica*, Clarke l.c. 50.

Stems about a foot or more long woody glabrous. Leaves in pairs coriaceous glabrous elliptic, oblong or ovate acuminate narrowed at the base into the petiole 1½-3 inches ¾-1½ inch wide, petiole ¼ inch long. Flowers subterminal a few in a cluster, pedicels ¼ inch long, hairy. Calyx obconic wide ¼ inch long hairy, mouth entire deep red. Corolla ½ inch long tube thick and short, lobes rounded, hairy deep red, with yellowish white central bars. Stamens very shortly exsert, filaments nearly glabrous. Capsule 8 inches long cylindric. Hook. fil. Bot. Mag. t. 7336.

Selangor, Klang (Beccari), Kwala Lumpur. Perak, Batu Kuran (Curtis 2990), Larut Hills (Ridley 2905), Blanja (Wray 149), Bujong Malacca (Curtis 3335) (Scortechini 1861); Dindings, Pangkor (Curtis 1338), Relan Tujor (Wray 1772), Gunong Chabang (Scortechini 28), Ulu Bubong (King's Coll. 10179).

Endemic. On trees in dense forest.

### 2. *Agalmyla*, Bl.

Climbing shrubs with loose bark. Leaves alternate long petioled, herbaceous lanceolate or ovate lanceolate. Flowers showy scarlet in compact axillary cymes. Calyx deeply 5 cleft, lobes narrow acute. Corolla tubular scarlet, ventricose above, two-lipped, lobes ovate obtuse 5, stamens perfect 2, longexsert; filaments slender, anthers connivent, imperfect, stamens 2-3. Disc annular thick. Ovary linear, superior, glabrous. Style as long as stamens or longer. Stigma 2 lipped, capsule linear long 2 valved, loculicidally. Seeds sessile small oblong with a single hair at each end.

Species 3, Malayan.

*A. staminea*, Bl., Bijdr. p. 767. Stems very long twining hairy at length glabrous. Leaves elliptic oblong, 8 inches long 3-4 wide, acuminate at both ends, light-green, backs strigose, nerves 8-10 pairs; petiole 6-8 inches long hairy. Cymes sub-sessile, pedicels strigose, bracts lanceolate, calyx long, lobes lanceolate acute pubescent, free nearly to base. Corolla 1 inch long curved dilate, scarlet pubescent, lobes short rounded. Stamens exsert for 1 inch glabrous, anthers oblong. Style stout glabrous, or very short. Capsule 1½ inches long slender.

R. Br. Benn. Pl. Jav. Rar., p. 116; Ann. Sc. Nat. 2, Vol. XIII, p. 161; Hook Ic. Pl. t. 733; De Vriese, Pl. Ind. Bat. Reinw. 10; Hook., Bot. Mag. t. 5747, Clarke l.c. 56.

*Justicia parasitica*, Lam. Ill. i, p. 42, *Cyrtandra staminea* Vahl 1, p. 105.

Perak, Larut Hills (Curtis 2042) (Ridley 2916), Scortechini (King's Coll. 6170); Bujong Malacca (Ridley).

Distrib. Java, Sumatra (Forbes 1864). Climbing on trees.

### *3. Didissandra.*

Shrublets or herbs with short or tall stems hairy, leaves opposite in remote pairs or crowded at the tip. Flowers solitary on subterminal peduncles or several on short axillary peduncles. Bracts small usually narrow, sepals free to the base or nearly so, 5 lanceolate or ovate, corolla blue white pink or yellow, narrowly tubular dilated upwards, occasionally broadly tubular infundibuliform, limb bilobed usually unequally, lobes rounded. Stamens 4 perfect, in two pairs, filaments long slender, anthers ovate or elliptic adhering by their faces, loculi parallel, connective sometimes prolonged into a horn. Disc annular, small. Ovary cylindric sessile, style as long or longer, stigma broad ovate. Capsule cylindric linear elongate, rarely short and thick, sessile splitting along the upper edge not twisted.

Species about 20, Malay peninsula and Sumatra.

*Note.*—Clarke, in making this genus, included in it several very different sections. I would exclude of these all the species with a short campanulate corolla and short filaments such as his section *Stilpnothrix*, and reserving his section *cyrtandroides* and § *speciosæ*. Of this latter, apparently confined to the peninsula, no species of the originally described sections belong; they form however a very characteristic group closely allied to some of the *Didymocarpi*.

§ *1. Cyrtandroides.* Tall shrubs with distant nodes, flowers several together in axillary clusters.

Leaves minutely crenulate — *1. D. frutescens*

Leaves entire — *2. D. Johorica*

§ *2. Speciosæ.* Stems woody short, leaves crowded at the top, flowers solitary rarely 2 on subterminal peduncles, bractcate plants with the habit of *Didymocarpi* of the section *Heterobœa*.

| | | |
|---|---|---|
| Leaves entire or obscurely crenulate glabrous above. | | |
| Flowers orange | *3.* | *D. flammea* |
| Flowers violet purple | | |
| Corolla tube slender infundibulifom | *4.* | *D. violacea* |
| Corolla very broad cylindric | *5.* | *D. atropurpurea* |
| Leaves serrate or dentate | | |
| Glabrous above | | |
| Sepals linear lanceolate hairy | *6.* | *D. glabrescens* |
| Sepals broadly lanceolate glabrous | *7.* | *D. Wrayi* |
| Leaves hairy above | | |
| Capsule slender cylindric | | |
| Sepals lanceolate acuminate ¼ inch | *8.* | *D. hirta* |
| | *9.* | *D. serratifolia* |
| Sepals oblong ovate ⅛ inch | *10.* | *D. atrocyanea* |
| Capsule short and thick | *11.* | *D. latisepala* |
| Leaves runcinate | *12.* | *D. quercifolia* |
| Leaves deeply lobed | *13.* | *D. filicina* |

*1. D. frutescens*, Clarke, Mon. Phan. p. 67, Pl. 7.

Shrub with woody stems 3-4 feet tall, stems appressed-hairy. Leaves opposite in alternate pairs distant elliptic lanceolate to oblanceolate minutely crenulate apex subacute, narrowed cuneate at the base 7-9 inches long 3-4 inches wide above sprinkled with fine hairs, beneath covered with appressed hairs especially on the nerves and reticulations, nerves about 13 pairs, petiole 1½-3 inches long hairy, cymes axillary sessile with short hairy branches 1 inch long, flowers 1-3 on a branch. Sepals lanceolate narrow red hairy, corolla tube white infundibuliform pubescent lobes rounded. Anthers ovoid filaments curved in the middle. Ovary glabrous, style pilose. Stigma sub-bilobed. Capsule slender cylindric 3 inches long glabrous longitudinally ribbed.

*Didymocarpus frutescens*, Jack, Mal. Misc. 1, part 2, p. 5; Trans. Linn. Soc. 14, p. 39; Calc. Journ. Nat.

Hist. 4 (1844), p. 58; **Br. Benn. Pl. Jav. Rar.**, p. 119; Ann. Sc. Nat. 2, vol. 13, p. 165; **Miq. Fl. Ind. Bat. 2**, p. 726.

*Henckelia frutescens*, **Spreng., Syst. Curæ Post.** p. 13.

Penang Hill, (**Wallich 780**) (**Curtis 828**) (**Maingay 1222**): Perak, Larut Hills (**Wray 1723**) **Ridley 2912**; Tapa (**Wray 826**), **Kinta River (King's Coll. 837**); Dindings, Lumut (**Ridley 7171**); **Malacca** (**Griffith 3856**).

Distrib. Sumatra (**Jack. in Herb. Deless.** fide Clarke but Jack only records it from Penang).

On banks in forests from **300 feet to 2000 alt. local** but abundant.

2. *D. Johorica*, n.sp.

Shrubby 2-3 feet tall pustular below hairy above. Leaves alternate below opposite above lanceolate acuminate long cuneate at the base, margins entire 6 inches long 1½ wide sprinkled with short conic hairs above shortly sericeal hairy beneath, nerves 6-7 pairs ascending. Cymes axillary peduncles slender hairy 1 inch long. Bracts short linear lanceolate. Flowers 3-4 in peduncle. Sepals small linear lanceolate acute hairy, corolla pink. Capsule slender pendent hispid 1½ inch long.

Johore, among Paan (**Ridley 4179**).

The flowers of this were unfortunately lost in drying so I am unable to describe it fully. **Endemic rare.**

3. *D. Wrayana*, Hook. f. Journ. Linn. Soc., **XXXII. 503.**

Stem about 2 inches long hardly woody pubescent. Leaves crowding petiole very short green shining above glabrous, veins and nerves beneath hairy 4 inches long 1¼ wide, veins slightly pubescent. Peduncle erect stout 3 inches long, densely pubescent. Flowers few pendulous. Sepals narrow linear acuminate green with purple pairs [illegible] ovate base narrow abrupt dilate [illegible] tissue, lobes short rounded, lower [illegible]. Stamens in 2 pairs, filaments

slender terete hispid above white anthers globose. Pistil white pubescent straight. Stigma clubbed. Disc ring shaped, capsule short cylindric purple 1½ inch long.

Legeh (Machado).

Endemic rare.

4. *D. violacea*, n.sp.

Stem woody about 6 inches tall. Leaves tufted at the top, thin oblanceolate subfalcate, narrowed at the base into the petiole, tip acuminate, margins sinuate, entire, glabrous above, petiole and midrib covered with red multicellular hairs. Peduncles numerous erect 2-3 inches long sparingly red hairy. Bracts linear lanceolate narrow ¼ inch long closely appressed to the calyx. Sepals linear lanceolate glabrous ¼ inch long corolla 1½ inch long violet tube rather narrow gradually dilated forwards, sparingly pubescent lobes unequal, lower lip much longer. Stamens 4, the longer pair hardly ¼ longer than the shorter ones; Pistil glabrous rather short. Stigma broad, capsule 1½ inch long moderately thick splitting along the upper edge.

Perak, summit of Gunong Batu Putih alt. 6700 (Wray 383) (Scortechini 389*b*).

Endemic.

Near *D. Wrayi*, but flowers smaller.

5. *D. atropurpurea*, Ridl., l.c. 504. Stem 2 inches long woody, leaves lanceolate or obovate narrowed at the base obscurely crenate bases unequal 4 inches long 1½ inch broad glabrous above, beneath hairy on the raised nerves, petiole 1-1½ inches long. Peduncles erect glabrous purple 2 flowered 2 inches long. Flowers nearly sessile. Bracts 2 ovate ¼ inch long ⅛ inch wide purple, sepals nearly free to the base lanceolate acute ¼ inch long glabrous, corolla 2 inches long ½ inch through narrowed at the base widely dilate above deep purple lobes short rounded, lower ones longer. Stamens in 2 pairs filaments straight anthers oblong appressed, style subequal thick

glabrous, stigma clubbed. Capsule 2 inches long, thick narrowed at the tip.

Perak, Hermitage Hill on rocks (Ridley), Gunong Inas (Scortechini 1322).

Endemic. Scortechini's poor specimen is this I think, he says however flowers pale red.

6. *D. glabrescens*, n.sp. Stem woody, leaves elliptic lanceolate or oblanceolate coarsely serrate 4 inches long 1 inch wide, above glabrous, beneath dotted glabrous, except the midribs and nerves red hairy, petiole 1 inch long hairy. Peduncle slender 4-5 inches long hairy, with 1 or 2 lanceolate oblong bracts at the top $\frac{1}{8}$ inch long. Flowers solitary. Sepals linear lanceolate obtuse-hairy $\frac{1}{8}$ inch long. Corolla "mauve," "dark blue" $1\frac{1}{2}$ inch long tube gradually dilated upwards lobes rounded pubescent, anthers subglobose. Style capitate broad. Capsule $1\frac{3}{4}$ inch long cylindric slender.

Perak, Summit of Gunong Batu Putih 6700 feet alt. (Wray 384) (King's Coll. 8055), Kinta (King's Coll. 7191).

Near *D. atrocyanea* but the leaves are nearly glabrous, and narrower with a longer petiole and the peduncle bracteate.

Endemic.

7. *D. Wrayi*. Stem woody bare below, leaves alternate lanceolate oblique acuminate dentate narrowed at the base into the petiole 4-6 inches long, $1\frac{1}{2}$-2 inches wide nerves 16 pairs elevated on both surfaces, glabrous above whitish beneath midrib and nerves below covered with coarse reddish trichomes, petiole $\frac{1}{2}$ inch long covered with rough multicellular trichomes. Peduncles from the upper axils slender one flowered 3-4 inches long covered at the base with red multicellular hairs. Bracts 2 ovate broad appressed to the calyx $\frac{1}{4}$ inch long glabrous, sepals broadly lanceolate obtuse glabrous $\frac{1}{2}$ inch long white, corolla $1\frac{1}{4}$ inch long white pencilled with violet, tube

thick over ¼ inch through, pubescent lobes broad rounded, stamens 4 didynamous, anthers rounded, style stout.

Perak, Summit of Gunong Batu Putih (Wray 334, 383) (King's Coll. 8036).

Endemic.

8. *D. hirta.* Stem woody 3 inches long, leaves oblanceolate oblique acuminate serrate, narrowed to the base 4-9 inches long, 2 inches wide sprinkled above with pale multicellular hairs especially long on the marginal teeth, beneath glabrous except on the midrib and nerves, covered with rather long multicellular hairs. Scape 3-4 inches long, hairy with catenulate multicellular hairs, sepals ¼ inch long lanceolate acuminate very hairy. Corolla violet with a darker centre, tube 1 inch long broad cylindric sprinkled with multicellular hairs, lobes large rounded ½ inch long glabrous, stamens 2 pairs unequal, stigma capitate.

Perak, Bujong Malacca (Ridley).

Endemic.

9. *D. serratifolia.* Stem woody 4-5 inches tall covered with red hairs above. Leaves opposite oblanceolate acuminate, base long cuneate, doubly serrate 6-8 inches long by 2 inches wide sprinkled with pale multicellular hairs above beneath glabrous except for the red multicellular hairs on the nerves and midrib, nerves about 17 pairs, petiole 1 inch long or less hairy, peduncle slender 4 inches long hairy 1 flowered, sepals lanceolate acuminate ¼ inch long recurved at length covered densely with long red multicellular hairs. Corolla 1½ inch long narrowed at the base dilate upwards, tube broad, sparingly hairy, lobes rounded, lower ones longer than the upper one. Stamens in 2 subequal pairs half the length of the tube, filaments attached close to the base sinuate, style stout, stigma capitate, capsule 1½ inch long subcylindric thick ⅛ through glabrous.

Perak, Bujong Malacca (Ridley 9779).

Endemic.

*10. D. atro-cyanea.*

Stem woody about 6 inches, leaves crowded at the top oblong or lanceolate oblong inæquilateral at the base strongly serrate (drying black), 4½ inches long nearly 2 inches wide, above sprinkled with conical processes formed by the pushing in of the leaf from the under surface, each bearing a short pale hair, beneath punctate and sprinkled with the mouths of the intrusions, glabrous except for the nerves and reticulations which are covered with rufous hairs, petiole winged to base covered with multicellular hairs. Scape 3 inches long covered with red hairs one flowered. Sepals oblong ovate glabrescent or with red hairs ⅛ inch long. Corolla nearly 2 inches long, base shortly narrowed tube broad cylindric pubescent, lobes short rounded subequal, deep purple mouth almost black, stamens 4, filaments slender. Capsule glabrous cylindric curved 1½ inch long.

Perak (Scortechini 368*b*), Bujong Malacca (Ridley, Curtis 3298).

Endemic.

*11. D. latisepala*, Ridl. l.c. 503.

Stem short woody, leaves crowded above oblong-oblanceolate, base unequal 7 inches long 2 wide or less crenate-dentate sparingly hispid red and nerves beneath covered with red hairs petiole an inch long. Peduncle 6 inches long hispid. Flowers few sepals ovate ⅛ inch long glabrous, corolla 1 inch long cylindric dilated upwards glabrous, lobes short rounded. Stamens 4, filaments linear, anthers subglobose, pistil glabrous, stigma clubbed. Capsule short thick fusiform ½ inch long.

Legeh (Machado.)

Endemic.

*12. D. quercifolia*, Ridl. l.c. 504.

Stem woody hairy, 6 inches long or less, leaves crowded above lanceolate runcinate, base narrowed deep green glabrous above, beneath glaucous with keel and

nerves covered with brown hairs 6-8 inches long 2 inches wide, petiole 1 inch or less long hairy. Peduncles 6 inches long sparsely hairy, flowers 1-2 large, bracts lanceate broad hispid. Sepals broadly lanceolate obtuse green glabrous. Corolla 2 inches long dilated cylindric from a narrow base lemon yellow glabrous, lobes short rounded. Pistil cylindric, stigma clubbed capsule 3 inches long glabrous cylindric.

Perak, Larut Hills, (Scortechini 292-300 (Curtis 2041) Ridley 2910); Bukit Rengas (Fox H. B. S. 10683.)

Endemic.

*13. D. filicina.*

Stem woody pale rather slender 6 inches long. Leaves tufted at the top lanceolate deeply lobed with oblong rounded lobes about 13 on each side 3-5 inches long 1 inch wide glabrous above, paler beneath with red appressed hairs on the midrib, petiole ½ inch long with red appressed hairs. Peduncle slender red hairy 1½ inch long 1 flowered. Bracts small ovate $\frac{1}{16}$ inch long. Pedicel ¼ inch long. Sepals elliptic rounded dark red sparingly hairy ⅛ inch long. Corolla 1½ inch long base narrow dilated upwards trumpet shaped sparingly pubescent at the base purple paler beneath outside throat, inside dark purple with 6 white lines down the base inside in the tube, lower lip longer than the upper one lobes rounded. Stamens 4 in two pairs, the connective prolonged into a triangular horizontal horn. Disc annular capsule sub-follicular 1½ inch long glabrous.

Perak, Gunong Chabang (Scortechini 14) on rocks overhanging a creek.

Endemic.

*4. Didymocarpus.*

Herbs or usually small shrubs, stems simple or branched, erect or prostrate. Leaves opposite or the alternate ones reduced, seldom wanting, ovate or lanceolate herbaceous, usually pubescent or hairy, petioled. Peduncles axillary, bearing one

or more flowers in a cyme. Sepals free to the base or nearly so, 5 short. Corolla infundibuliform bilabiate, lobes equal or the lower ones longer than the upper. Stamens 2 complete, filaments filiform, rising from about half way down the tube, anthers reniform connivent by the edges. Staminodes 2 short hooked, ovary cylindric passing into the style. Stigma capitate or ovate entire. Disc annular or absent. Capsule cylindric narrow usually splitting along the upper edge. Seeds numerous minute ellipsoid not plumed.

Species about 100. Distribution, India and Malaya.

1. *Elatae.*

Stem tall branched, shrubby. Leaves in distant pairs opposite unequal.

Bract one cup-shaped appressed together, corolla lips, 1 *D. corchorifolia*

Stem long and weak. Bracts 2 ovate 2 *D. sulphurea*

Stem weak. Bracts ovate amplexicaul Flowers yellow. 3 *D. citrina*

Bracts oblong glabrous. Flowers claret color 4 *D. purpurea*

2. *Didymanthus.*

Stem erect herbaceous, leaves in distant pairs. Flowers very small ¼inch long axillary. Flowers medium size 5 *D. parviflora*

Flowers yellow.

Leaves lanceolate acute 6 *D. flava*

Leaves ovate acuminate 7 *D. ramosa*

Leaves unequal narrowly lanceolate 8 *D. flavescens*

Flowers white.

Leaves opposite equal hairy or pubescent ovate edges pubescent 9 *D. hispidula*

Edges conspicuously red hairy 10 *D. hirta*

Leaves lanceolate thinly pubescent 11 *D. viscida*

Leaves subglabrous equal longpetioled 12 *D. albina*

Leaves glabrous unequal
Flowers solitary on short peduncles 13 *D. alternans*
Flowers in pairs on long peduncles from upper axils 14 *D. glabrata*
Stem erect herbaceous little branched.
Flowers yellow, corolla cylindric trumpet-shaped.
Leaves petioled silky in distant pairs.
Corolla 2 inches long 15 *D. malayana*
Corolla 1 inch long 16 *D. albomarginata*
Leaves crowded above hairy.
Flowers small congested 17 *D. flavobrunnea*
Stem woody short. Leaves glabrous congested at the top not petioled 18 *D. longipes*
Stem woody. Leaves alternate lanceolate inæquilateral Flowers blue 19 *D. inæqualis*
Stem woody. Leaves crowded or distant elliptic petioled. Flowers small white 20 *D. alba*

3. *Reptantes.*

Prostrate or creeping herbs. Leaves in distant pairs equal or unequal hairy or pubescent.
Flowers blue or white. Leaves hairy rarely glabrous.
Flower in uppermost axil peduncle short 21 *D. reptans*
Leaves velvety elliptic. Flowers solitary terminal 22 *D. ophirensis*
Flowers numerous on slender pedicels 23 *D. pulchella*
Flowers orange or yellow. Sepals hairy 24 *D. crocea*
Sepals narrower subglabrous 25 *D. ascendens*

4. *Heteroboea.*

Stems woody usually short with the leaves crowded towards the top, more or less hairy above, and little or not branched. Leaves hairy silky or rarely glabrous lanceolate serrate narrowed at the base into a winged

petiole, alternate. Peduncles slender axillary in the upper axils, one rarely 2 flowered. Bracts usually small solitary linear. Corolla large showy white, crimson or blue rarely yellow, filaments long slender. Capsule narrow cylindric.

Flowers solitary, bracts very small.

Leaves glabrous wrinkled 26 *D. rugosa.*

Leaves tessellate not wrinkled glabrous or with scattered hairs with swollen bases obovate. Capsule over 2 inches long 27 *D. platypus*

Capsule shorter 1 inch long 28 *D. kompsoboea*

Leaves not tessellate hairy or pubescent

Leaves broad covered with close short hairs.

Flowers white tipped crimson 29 *D. quinquevulnera*

Flowers deep crimson 30 *D. atrosanguinea.*

Leaves narrow lanceolate hairy distant

Stem branched flowers yellow 31 *D. hirsuta*

Leaves silky pubescent on both surfaces 32 *D. bombycina*

Leaves crowded thickly appressed hairy.

Flowers white or blue 33 *D. crinita*

Leaves crowded covered with short scattered hairs above, deep green with central white bar.

Flowers white 34 *D. fasciata*

Flowers in pairs on a long peduncle.

Bracts very broad 35 *D. venusta*

5. *Salicinæ.*

Small shrubby plants with narrow leaves crowded at the top. Flowers small.

Leaves entire 36 *D. densifolia*

Leaves serrate. Flowers $\frac{1}{8}$ inch long 37 *D. salicina*

„ „ Flowers $\frac{3}{4}$ inch long 38 *D. serrata*

Leaves deeply cut pinnate 39 *D. pectinata*

6. *Acaules.*

| | | |
|---|---|---|
| Stemless or nearly so. Leaves crowded. | | |
| Flowers panicled, lips very unequal | 40 | *D. violacea* |
| Flowers 1-2 racemose. Flowers large blue | 41 | *D. lacunosa* |
| Flowers small. Leaves elliptic peltate | 42 | *D. perdita* |
| Leaves obovate crenulate, capsule very short and broad | 43 | *D. puncticulata* |
| Capsule linear narrow | 44 | *D. heterophylla* |
| Leaves small entire silky | 45 | *D. pumila* |
| Affinity doubtful. | | |
| Stem tall. Leaves alternate distant | | |
| Panicles small adnate to petioles | 46 | *D. lilacina* |

§ *1. Elatae.*

1. *D. corchorifolia*, R. Br. Benn. Pl. Jav. Rar. p. 119, Ann. Sc. Nat. 2, Vol. 13, p. 164.

A shrub from 4 to 6 feet tall much branched with a stout woody stem. Leaves opposite but unequal ovate subacute inæquilateral, base rounded serrate 3-5 inches long 1½-2 inches wide covered with soft short felted hair on both sides, but most on the back, petiole 1-3 inches. Panicles lax axillary 2-3 inches long, peduncles short pubescent. Flowers numerous. Bracts cup-shaped. Calyx entire cup-shaped ¼ inch long 5-toothed. Corolla ¾ inch long white apple-green in the throat, or often purplish white, tube straight thick, lobes rounded, upper lip recurved, base appressed to the broad decurved lower lip which is much longer. Capsule cylindric, one inch long pubescent splitting to near the tip. Clarke Mon. Phan. 85., Ridl. Journ. Bot. 1890, p. 68.

Selangor, Pahang Track (Ridley 8553); Perak, Bujong Malacca, Ridley 9775, (Curtis 3130), (King's Coll. 10, 979 & 10, 998), Kinta (Kings' Coll. 7220); Penang (Wallich 792) Government Hill (Curtis 1239), Maingay 1227.

Endemic on rocks. This is the biggest species of *Didymocarpus* and the most woody one known to me. It is also peculiar in having the two lips of the corolla mouth pressed together, quite like those of a snapdragon (*Antirrhinum*).

2. *D. sulphurea*, n. sp.

A shrubby creeper 6 to 10 feet long. Stem pubescent branched with long internodes. Leaves opposite but very unequal, one 3 inches long by $\frac{3}{4}$-1 inch wide, the opposite one $\frac{1}{2}$-$\frac{3}{4}$ inch long $\frac{1}{6}$-$\frac{1}{4}$ inch wide ovate or lanceolate acute base unequal cuneate margins crenulate dentate, deep green above purple beneath, nerves 6-7 pairs elevated on both surfaces, sprinkled all over on both surfaces with short hairs, more hairy on the back. Peduncles axillary filiform 4-6 inches long pubescent, branches at the top two or 3 each bearing as many flowers. Bracts 2 to each pair of flowers ovate glabrous $\frac{1}{8}$ inch long. Sepals elliptic ovate obtuse glabrous. Corolla infundibuliform $\frac{1}{2}$ inch long glabrous, upper lip short recurved lower one longer. Stamens exsert shortly, filaments thick pubescent. Style stout. Stigma excavate at the top. Capsule $1\frac{1}{2}$-3 inches long rather thick cylindric acuminate, glabrous.

Perak, Larut Hills, Gunong Hijau (Scortechini 6*a*) also on Chabang and G. Bubu, Gunong Batu Putih (King's Coll. 8059) Wray 219, Bujong Malacca (Ridley 9774).

Var. *breviflora*, bracts and sepals narrower acute pubescent.

Corolla smaller $\frac{1}{4}$ inch long. Capsule pubescent $\frac{3}{4}$ inch long.

Selangor, Bukit Kutu (Ridley 7582). Endemic.

3. *D. citrina*, Ridl., Journ. Linn. Soc., XXXII, 508.

A soft weak herb about a foot tall pubescent. Leaves soft ovate or ovate lanceolate crenulate velvety, opposite but unequal largest 2-3 inches long $1\frac{1}{4}$ inch wide, petioles $\frac{1}{2}$-3 inches long. Panicles axillary 3 inches long base

pubescent above glabrous hairy. Pedicels ½-1 inch long terete glabrous. Bracts cordate ovate acute nearly amplexicaul polished green with red edges. Sepals triangular spreading stiff green, edges red. Corolla lemon yellow pendulous, tube an inch long funnel shaped, base narrowed, mouth dilate ½ inch across, upper lobes broad rounded recurved, lower ones larger. Stamens 2, filament short sinuate, pubescent, anthers subtriangular. Ovary and style ½ inch long pubescent. Stigma peltate. Disc cylindric. Capsule an inch long angled glabrous.

Kedah, Gunong Jerai at 2,000 feet alt. (Ridley 5518). Endemic.

4. *D. purpurea*, Ridl., Journ. Linn. Soc., XXXII, 508.

Stem herbaceous 12-18 inches tall. Leaves ovate crenulate acute inæquilateral velvety 4 inches long 2 inches wide petiole ¼ to ½ inch long. Peduncle erect subterminal glabrous 3 inches tall. Panicle erect 4 inches long with slender branches. Bracts small ovate. Calyx lobes spreading oblong glabrous short. Corolla tubular with a tube narrowed at the base, dilated upwards, purple, lobes rounded, lower ones longer. Stamens 2 filaments filiform included. Staminodes filiform. Ovary cylindric. Stigma broad discoid. Capsule ½ inch long glabrous cylindric stipitate.

Lankawi, Gunong Chinchan, 1000-1500 feet alt. (Curtis 2567).

Endemic.

§ 2. *Didymanthus.*

5. *D. parviflora*. n.sp.

A small erect herb about 1 foot tall or less much branched. Stem slender covered with appressed hairs. Leaves opposite equal lanceolate acute 1 inch long ¼ inch wide, above glabrous puncticulate, beneath yellow pustular with short translucent hairs onger and multicellular along the edge keel and nerves, nerves 5 pairs,

petiole ¼ inch hairy. Flowers solitary axillary on slender hairy peduncles ¼ inch long. Sepals linear obtuse pubescent. Corolla ¼ inch long yellow pubescent tube broad straight, lobes short broad rounded. Stamens nearly as long as corolla lobes, anthers large white reniform, filaments glabrous. Pistil as long as stamens pubescent. Stigma capitate entire. Capsule slender pubescent.

Negri Sembilan, Gunong Angsi (Ridley) fl. Feb.

Endemic.

6. *D. flava*, Ridl., Journ. Linn. Soc., XXXII, 507.

Stem a foot tall scabrid branched. Leaves lanceolate acute base narrowed denticulate scabrid beneath covered on the nerves with short hairs 3 inches long 1½ inch wide, petiole ½ inch long. Cymes axillary and subterminal on hairy peduncles 1-2 inches long, pedicels ½ inch long. Flowers 4 or 5. Calyx short lobes hispid lanceolate. Corolla glabrescent yellow ¾ inch long tube straight dilate upwards lobes short obtuse. Style slender pubescent. Capsule cylindric 1½ inch long hispid.

Perak, Larut Hills (Ridley 2914)(Curtis 2690) (King's Coll. 2151) a small leaved form.

Endemic.

Var. *purpurascens.*

Stems stouter over a foot tall hairy. Leaves opposite equal, obliquely ovate acute, often purple as is the stem.

Perak, Bukit Kapayung, Sungei Siput (Ridley).

7. *D. ramosa*, n.sp.

Stem slender branched, pubescent with appressed hairs over a foot tall. Leaves distant opposite, but one of each pair much smaller, ovate acuminate, thin rounded or slightly narrowed at the base glabrous above, sparingly hairy on the nerves beneath, nerves about 7 pairs 2-3 inches long 1-½ wide or smaller, petiole ⅛ inch long. Peduncles slender from the lower axils 1-1¼ inch long, 2 flowered viscid hairy. Sepals lanceolate acuminate

viscid hairy ⅛ inch long. Corolla tube straight hardly dilated ½ inch long greenish yellow, bilabiate, lower lobe longer than upper lobes rounded. Stamens 2 filaments long filiform, anthers oblong. Ovary long cylindric style long slender. Stigma capitate small.

Perak, Gunong Batu Putih (Wray 868).

Endemic.

*8. D. flavescens*, n.sp.

Stems slender over a foot long covered with short appressed hairs. Leaves distant opposite but unequal, lanceolate acuminate at both ends entire sprinkled over on both sides with short scattered hairs 1½-2 inches long ½ inch wide, petiole ⅛ inch long, silky hairy. Peduncles slender subterminal 1 inch long pubescent, one flowered. Sepals linear hairy. Corolla yellowish white ½ inch long pubescent tube straight cylindric hardly dilated above, bilabiate lobes short rounded. Stamens 2 filaments filiform. Ovary short cylindric. Style short pubescent stigma capitate.

Selangor, Kwala Kubu (Ridley 7585).

Endemic rare.

*9. D. hispidula*, Ridl., Journ. Linn. Soc., XXXII, 507.

Stem 6-12 inches tall hispid. Leaves opposite equal ovate or lanceolate acute or acuminate at both ends, 3-5 inches long 1-2 inches wide above scabrid beneath, hairy especially on the nerves, petiole 1 inch long. Peduncles 1-3 erect from the upper axils 3 inches long hairy with three or 4 terminal branches, bearing a few flowers. Pedicels hispid half an inch long. Bracts linear ¼ inch long. Calyx ¼ inch long lobes lanceolate hairy. Corolla glabrous an inch long whide with violet streaks in the lower lip, tube straight funnel shaped upper lobes ovate subacute, lower ones longer. Stamens 2, filaments slender nearly straight filiform. Staminodes short clubbed 2, ovary fusiform pubescent. Style terete. Stigma capitate. Capsule 1½ inch long straight cylindric.

Perak, Larut Hills 4-6000 feet elevation, (Curtis 2037, 1312) Ridley, King's Coll. Abundant on banks.

Var? *Selangorensis.*

Leaves shorter glabrous above. Sepals longer. Fruit 3 inches long softly velvety.

Selangor, Gunong Semangko (Curtis 3752).

This may be specifically distinct but the specimens are out of flower.

*10. D. hirta*, n.sp.

Stem herbaceous branched about a foot tall, thickly covered with rather long reddish multicellular hairs. Leaves opposite ovate or ovate lanceolate subacute serrulate narrowed at the base 3 inches long 1-1½ inches wide, above rather densely hairy, with multicellular hairs, edge hairy, beneath keel and veins covered with close long pale hairs, petiole ¼ inch long hairy. Peduncles subterminal 2½ inch long very hairy, red. Bract very small linear, Flowers solitary on the peduncles. Sepals linear narrow hairy ⅛ inch long. Corolla absent. Capsule 2 inches long cylindric closely but very shortly hairy. Pistil cylindric. Style long pubescent. Stigma discoid.

Selangor, above the Gap, Semangko Pass (Curtis).

Near *D. hispidula* but much more hairy. I have seen no corollas.

Endemic.

*11. D. viscida*, n.sp.

Stems slender 6 inches or more tall shortly roughly hairy, Leaves opposite lanceolate or ovate lanceolate thin acuminate, base inæquilateral, 3-4 inches long 1-1½ inch wide above sparingly scabrid hairy, beneath hairy on the nerves about 6 pairs, petiole half an inch long roughly hairy. Peduncle subterminal 2 inches long viscid hairy, cyme branches 1 inch long. Calyx lobes very short lanceolate viscid hairy. Corolla little over ½ inch

long, tube swollen at base then infundibaliform white sparingly pubescent. Stamens 2, included, filaments filiform. Style shorter. Capsule slender cylindric acuminate viscid hairy 1 inch long.

Perak, Gunong Keledang (Ridley 9781).

Endemic.

*12. D. albina*, n. sp.

Stem 2-3 feet tall herbaceous appressed hairy. Leaves opposite equal lanceolate or ovate lanceolate acuminate at base and apex, margins shortly serrate 5 inches long by 1¾ inch wide glabrous except the midrib on the back covered with appressed hairs petiole appressed hairy 1½ inch long. Peduncle axillary 3 inches long, with a lax few branched terminal panicle 1 inch long. Bracts and bracteoles linear. Sepals lanceolate acuminate $\frac{1}{10}$ inch long. Corolla ½ inch long waxy white slightly pubescent, tube cylindric limb distinctly bilobed. Filaments glabrous, anthers ovate lanceolate. Style and pistil pubescent.

Perak, Gunong Batu Putih (King's Coll. 8070).

This is allied to *D. hispida*, Ridl., but with nearly glabrous leaves more lanceolate and smaller flowers.

Endemic.

*13. D. alternans*, n. sp.

Stem about a foot tall erect not branched scabrid hairy above rather slender. Leaves sub-alternate or opposite lanceolate acuminate base cuneate thin entire or slightly serrate base inæqualateral 3 inches long by 1¼ wide nearly glabrous except the midrib on the back and petiole ¼ inch long which are scabrid hairy, opposite leaf reduced to a small ovate blade ½ inch long or wanting. Flowers solitary axillary on short pedicels slender ⅛-¼ inch long with 2 linear small bracts, all pubescent. Calyx lobes lanceolate acute hairy ⅛ inch long. Corolla ½ inch long white centre yellow tube narrowed at the base dilate upwards pubescent lobes subequal rounded, lips not very

distinct. Stamens 2 filaments filiform included anthers elliptic connate. Staminodes filiform short clubbed. Style fairly long hairy. Stigma capitate. Capsule slender cylindric glabrous 1 inch long.

Perak, Bujong Malacca (Ridley 9777) (Curtis 3133), Larut Hills (Curtis 3133) (King's Coll. 2311).

Endemic, on banks at 2-4000 feet elevation.

In some specimens both the leaves of the pair are fully developed, in others one is reduced to a very small ovate abortive leaf.

*14. D. glabrata*, n. sp.

Slender herb branched over a foot tall, almost glabrous except for a little pubescence on the upper part of the stem and petioles. Leaves opposite subequal or one leaf larger than the other, elliptic or ovate 1½-2 inches long 1 inch wide, or less margins entire apex subacute, base cuneate or rounded oblique nerves 7 pairs, with midrib pubescent petiole slender pubescent ¼ inch longer or less. Peduncles axillary 2 inches long from the upper axils pubescent 2 flowered. Bracts very small linear. Pedicels ¼ inch long pubescent. Sepals narrowly lanceolate ⅛ inch long. Corolla white (not seen). Capsule linear acuminate 1½ inch long pubescent.

Johor, Gunong Panti (King's Coll. 209).

Endemic, allied to *D. alternans*, very glabrous for a *Didymocarpus*.

*15. D. malayana*, Hook fil., Gard. Chron. 1896, vol. II, p. 123, fig. 24. Bot. Mag. t. 7526.

Stem very short to 3 inches long. Leaves ovate obtuse shortly petioled to lanceolate acute long petioled 7 inches long 2¾ inch wide nerves conspicuous, 15 pairs silky hairy. Peduncles stout silky hairy 3-4 inches long scapose with 2 flowers at the top or with 2 erect branches 3 inches long bearing 8 or 9 flowers each. Flowers nodding. Calyx lobes linear obtuse pubescent long. Corolla 2 inches long bright yellow, tube narrowed at the base

gibbous inflated above, hairy, lobes rounded subequal. Stamens 2, filaments included filaments curved, glabrous, anthers shield-shaped with 2 projecting horns on each. Staminodes minute tooth like. Ovary hairy conic, disc cylindric. Style long glandular pubescent. Stigma capitate. Capsule cylindric 1-1½ inch long.

Perak, Bujong Malacca (Curtis 3300) (Ridley 9778), Tanjong Malim (Baldwin, Chabong (Scortechini 189); Selangor, Gunong Semangko (Curtis 3300); Bukit Kutu (Ridley 7580).

Endemic, at an altitude of from 1500 to 3000 feet, abundant A very beautiful plant.

16. *D. albomarginata*, Hemsley, Journ. Bot. XXV (1889) p. 204.

Stem 6-12 inches tall pubescent red. Leaves elliptic or ovate obtuse, with a broad or cuneate base dark green edges and nerves white sparsely hairy above silky beneath nerves about 10 pairs 3-4 inches long 1-1½ inch wide. Peduncles axillary and sub terminal hairy pink 3 inches long racemose or sparingly branched. Calyx lobes lanceolate hairy. Corolla yellow, tube narrow pinkish white dilate upwards, lobes subequal rounded. Stamens 2, filaments thickened at the base curved, anthers reniform with short processes. Staminodes 2 filiform hooked ovary cylindric conic pubescent. Style long. Stigma wider discoid. Capsule cylindric acuminate rather thick, lip upcurved hairy ¾ inch long.

Perak, Larut Hills, 3-5000 feet (Wray) (Curtis 2039, 2991) (Ridley 2908) King's Coll. 1817).

Endemic, closely allied to *D. malayana* and difficult to tell in dried specimens except from the much smaller flowers.

17. *D. flavobrunnea*, Ridley, Trans. Linn. Soc., p. 329.

Stem slender seldom branched densely pubescent 3-4 inches tall. Leaves alternate ovate lanceolate acute base unequal narrowed, serrate 7 inches long 3 inches wide, nerves and midrib beneath covered with shining brown

hairs, above sparingly pubescent. Peduncles 8 inches long stiff hispid branched shortly dichotomously above. Branches short crowded. Flowers numerous, small. Bracts lanceolate acuminate ¼ inch long hispid. Pedicels short. Sepals linear narrow pubescent. Corolla 1 inch long tube cylindric gradually dilated towards the lips lobes unequal rounded short, tube brownish outside limb yellow with an orange spot in the mouth and some red streaks. Stamens 2, with filiform filaments, ovary elliptic. Capsule 1 inch long, narrowed gradually from the base splitting above nearly to the apex, glabrous.

Pahang, Tahan River woods (Ridley 2163).

Endemic, the fruit crowded at the top of the peduncle radiating in all directions gives this the appearance of one of the *Paraboeas*.

*18. D. longipes*, Clarke. Mon. Phan. p. 87.

Stem woody 2 inches long hairy at the top. Leaves oblanceolate narrowed to the base obscurely serrate glabrous deep green above, hairy on the midrib purple beneath 8 inches long 2¼ wide. Peduncles 9-18 inches tall rather stout purple pubescent. Flowers few racemose (occasionally panicled) pendent very shortly pedicelled. Calyx lobes linear acuminate pubescent purple ⅛ inch. Corolla 1½ inch long pale yellow pubescent tube straight little dilated upwards, lobes upper two short rounded, lower lobes longer oblong. Stamens 2, filaments adnate to tube near the mouth short thick, anthers reniform connate, just included, with 2 short appressed horn like processes of the connective. Ovary elongate conic passing into the terete style. Stigma discoid. Disc cylindric. Capsule 1¼ inch long rather thick splitting along the upper sege.

Malacca, Mt. Ophir (Griffith 3854) (Cuming 2385) (Maingay 2723) (Ridley 3179).

On rocks in woody places. Endemic.

This is a very distinct plant from the *malayana* set in its short subterranean stem, and large rosette of glabrous

leaves. The flowers however are those of the *malayana* group and the anthers have the short connective horn on one side which seems almost peculiar to these.

19 *D. inæqualis*, Ridley, Journ. Linn. Soc., XXXII, p. 506.

Stem woody 5 inches or more tall ⅛ inch thick brown-pubescent. Leaves alternate distant lanceolate inaequilateral acute serrate narrowed to the base, velvety above, pubescent beneath 5 inches long 1½ inch wide or smaller, petiole distinct pubescent ½ inch long. Peduncles from the upper axils 1½ inch long pubescent. Flowers crowded pedicellate. Bract linear nearly ¼ inch long. Calyx campanulate lobes not free to the base linear, ⅛ inch long pubescent. Corolla blue 1 inch long tube slender enlarged upwards, lobes short rounded. Filaments long slender. Ovary elongate cylindric. Stigma obconic. Capsule cylindric glabrous 1½ inch long.

Lankawi, Gunong Chinchang (Curtis 2568).

Endemic. A peculiar plant not very closely allied to any other.

20. *D. alba*, n.sp.

Stem woody creeping ascending, hairy pubescent. Leaves crowded towards the top lanceolate scute base 2 inches long ¼-½ inch wide softly densely hairy on both sides, petiole densely hairy ½ inch long. Peduncles short ½ inch or less long one-flowered densely hairy. Calyx lobes free to base linear acuminate long hairy ⅛ inch long. Corolla quite white ½ inch long base cylindric gradually dilated upwards hairy lobes short rounded, lobes short subequal. Stamens 2 filaments rather short filiform. Staminodes 3 filiform clubbed shorter. Pistil pubescent. Capsule ¾ inch long curved acuminate splitting along the upper surface glabrous.

Perak, Bujong Malacca (Curtis 3299).

Var. *major*.

Stems taller over a foot. Leaves more remote and less hairy, peduncles longer, 1 inch in flower, 1½ long in fruit. Corolla 1 inch long.

Perak, Gunong Bubu (Wray 3905).

Endemic.

### § 3. *Reptantes.*

*21. D. reptans*, Jack. Malay Misc. 1, p. 2, p. 3 (1820); Trans. Linn. Soc. 14, p. 35.

Stems 6 inches or more long creeping villous. Leaves opposite ovate or elliptic obscurely crenulate blunt narrowed at the base or rounded sprinkled with villous hairs above, more hairy beneath, ¾-3 inches long ½-¾ inch wide, Peduncles slender subterminal one-flowered hairy 1 inch long. Bract very small. Pedicel ¼ inch. Calyx lobes linear villous ⅛ inch long. Corolla ½ inch long, white with purple and yellow streaks in the mouth tube, pubescent trumpet-shaped, lobes rather large rounded. Stamens 2, filaments far included filiform. Staminodes very short. Ovary cylindric. Style slender. Stigma discoid. Capsule 1 inch long slender splitting nearly to the apex, abrid.

Spreng. Syst 2, p. 837; Don. Gen. Syst. 4, p. 659; R. Br; Pl. Jav. Rar. p. 119; Ann. Sc. Nat. 2, vol. 18, p. 164. Miq. Fl. Ind. Bat. 2726; Clarke, Monogr. Phan 17-95.

Penang (Wallich 787) (Maingay 1223) (Lobb 335), Pulau Betong (Curtis 1706).

Var. *monticolo* Ridl., Journ. Linn. Soc, l.c. 511.

More slender and creeping for 1½ feet or more. Shoots covered with rufous hairs. Leaves narrower lanceolate 2-3 inches long ⅜ inch wide, acute narrowed into the petiole. *D. producta*, Clarke, Monog. Phan. V, p. 96.

Selangor, Pahang, Track (Ridley 8561), Ginting Bidai (Ridley 7586); Negri Sembilan, Bukit Tumiang, and Bukit Sulu (Cantley's Coll.); Perak, Gunong Batu Putih

(Wray 9 27 & 480); Dindings, Simpit near Lumut (Ridley 3073) Larut Hills to the top (Curtis 2040 & 2992) (Ridley 2913) (Scortechini 20 & 257 a) a remarkable rufous haired form. Goping (King's Coll. 1099).

Distrib. Sumatra.

The form from the top of the Larut Hills has much narrower more glabrous leaves but the plant is remarkably variable in foliage. It forms often great masses in woods and is quite common in the hilly districts. The type form of the species is a rock plant confined to Penang, but the commonest form is the variety *monticola*. Clarke's *D. producta* was based on one of Horsfield's Sumatran plants in the British Museum. This type seems to me identical with some of the hill forms in the peninsula.

Var. *violascens*.

Stems ascending for a foot or so. Leaves rather remote nearly glabrous above except the edges and midrib densely hairy, more hairy beneath, nerves elevated densely appressed hairy. Flowers purplish white.

Selangor, Rawang (Ridley 7583), Dusun Tua (7584).

22. *D. Ophirensis*, n. sp.

Stem long creeping over a foot long. Leaves opposite somewhat unequal elliptic dark green with white on the nerves 1-3 inches long $\frac{1}{2}$-1 inch wide base rounded, above sprinkled with short hairs, edges entire thickly hairy, beneath paler more hairy, nerves 5-6 pairs densely hairy, petiole $\frac{1}{4}$ inch long hairy. Peduncles subterminal 1 inch long hairy. Sepals linear $\frac{1}{8}$ inch long densely hairy. Corolla $\frac{3}{4}$ inch long gradually dilate forwards, rather broad at the top, hairy purple and white, upper lip much shorter than lower one. Stamens filiform little shorter than the corolla. Style slender. Stigma capitate. Capsule cylindric hairy 1 inch long.

Malacca, lower part of Mount Ophir (Ridley 3185). I took this at first to be *D. marginata*, Clarke, which was based on a plant collected in Malacca or Luzon by Lobb,

but which from description may be a form of the very variable D. *reptans*, and the locality of which is doubtful.

*23.* *D. pulchella*, n. sp.

Stems slender 3-6 inches long purple covered with appressed hairs. Leaves opposite elliptic obtuse 1-2 inches long dark green above with a central white stripe, dotted with short hairs beneath purple, sprinkled with hairs, the nerves and edges hairy, petiole $\frac{1}{4}$-$\frac{1}{2}$ inch long hairy. Peduncles axillary 1 inch long slender hairy. Bract linear very small. Pedicel $\frac{1}{2}$ inch long slender hairy. Calyx lobes narrowed linear $\frac{1}{8}$ inch hairy. Corolla white, with yellow in the mouth, nearly 1 inch long, tube cylindric hardly dilate sparingly hairy lobes oblong rounded. Stamens 2 fertile, filaments filiform straight, anthers oblong. Ovary slender cylindric pubescent, with style $\frac{3}{8}$ inch long. Capsule narrow cylindric upcurved $1\frac{1}{2}$ inch long pubescent.

Pahang, Kwala Lipis (Machado, H.B.S. 11629).

Endemic.

*24.* *D. crocea*, n. sp.

Stems creeping a foot or more long succulent pubescent. Leaves opposite but unequal ovate obtuse 1-3 inches long $\frac{3}{4}$-1 inch wide softly hairy green with white veins, nerves beneath elevated. Petiole $\frac{1}{2}$ inch long or much shorter. Peduncles sub-terminal 1 inch long 1 flowered softly hairy. Bracts 2 short linear. Sepals linear pubescent $\frac{1}{6}$ inch long. Corolla 2 inches long, bilabiate pubescent orange-yellow, tube narrowed at the base dilate gibbous above, lobes rounded darker orange, lower lip longer than upper. Stamens 2 filaments sinuate, anthers with 2 processes each on the back. Staminodes filiform hooked. Style slender. Stigma capitate. Capsule rather thick curved upwards $1\frac{1}{4}$ inch long pubescent.

Perak, Gunong Keledang on banks (Ridley 9776) (Curtis 3301), Sungkei (King's Coll. 3014).

Endemic, local on banks.

*25. D. ascendens*, Ridl., Journ. Linn. Soc., l.c. 512.

Stem creeping ascending branched above, rather slender 4-8 inches tall, branches 2 inches long or more. Leaves crowded above opposite subequal ovate entire subacute narrowed or broad at the base, silky hairy, dark green edges white silky, 1½ inch long ½-1 inch wide, petiole 1 inch long or less. Peduncles very short ⅛ inch long hairy. Flowers solitary. Sepals linear acuminate silky. Corolla orange yellow 1½ inch long narrow cylindric dilated forwards pubescent, lobes short rounded subequal. Stamens 2 filaments long thick, anthers triangular obtuse. Ovary cylindric pubescent. Style long. Stigma ovate triangular.

Perak, Tapa (Haviland) (Curtis 3106), Goping (King's Coll. 458).

Endemic.

§ 4. *Heteroboaea.*

*26. D. rugosa*, n.sp.

Stem short stout woody 2-3 inches long. Leaves crowded at the top oblong oblanceolate winged to the base dentate rather thick glabrous and strongly bullate wrinkled above, beneath pubescent with midrib and nerves hairy, nerves very numerous and close (about 40 pairs) nervules transverse strongly raised 3 to 5 inches long 1½-2 wide. Peduncles slender 3 inches long hairy ebracteate. Flowers solitary. Sepals short ovate acute. Corolla tube trumpet shaped 1 inch long lower lip longer than the upper, lobes broad, white with yellow central bar. Stamens 2, anthers narrow connective two horned. Staminodes short very slender hooked. Pistil and style very hairy. Stigma broad reniform.

Perak, Hulu Selama (Scortechini 1273); Kelantan, Kwala Lebir (Dr. Gimlette).

Endemic. Remarkable for the strongly wrinkled thick leaves. The transverse nervules are depressed on the upper surface, the tissue between being pushed up in a bullate manner.

*27. D. platypus*, Clarke, Mon. Phan. 94.

Stem woody below pubescent, leafy above 4-22 inches long. Leaves sessile, oblanceolate alternate 8-13 inches long 3 inches wide margins serrate, above sprinkled with multicellular hairs from a swollen base, beneath glabrous except for the elevated nerves and reticulations, densely appressed hairy. Peduncles numerous axillary 1 inch long slender hairy. Bracts 2 short lanceolate hairy. Pedicel one flowered ½ inch long hairy. Sepals ovate obtuse hairy $\frac{1}{10}$ inch long. Corolla from a narrow base dilated forwards 1¼ inch long, sparingly hairy, white with a yellow mouth, lobes broad rounded. Stamens 2 filaments filiform long, anthers reniform, with a process of the connective projecting beyond them. Style long slender. Stigma wide discoid. Capsule cylindric 1½ inch long pubescent.

Singapore, Bukit Timah, Selitar (Ridley); Johor, Ulu Batu Pahat (Kelsall), Gunong Pulai (Ridley 3729); Malacca (Griffith 3825) (Cuming 2359), Ayer Panas (Derry III); Negri Sembilan, Perhentian Tinggi (Ridley 10097), Bukit Temiang (Cantley); Selangor, Klang (Beccari), Kuala Lumpur (Ridley); Perak, Gunong Batu Putih (Wray 934), Goping (King's Coll. 832).

Distrib. Sumatra.

The commonest species in the Peninsula in damp spots in woods in the low country.

Malay Names: — "Poko Julong Rimbah," "Poko Sambuyen."

*28. D. Kompsobaea*, Clarke, Mon. Phan. 92 t. X.

Stem woody 4-5 inches tall. Leaves crowded at the top oblanceolate acute narrowed towards the base 9 inches long 2 inches wide, margins coarsely crenate-dentate, above glabrous when adult with a few multicellular hairs when young, beneath minutely pubescent nerves and reticulations elevated, midrib and main nerves with long brownish appressed hairs. Peduncles 1 flowered 4

inches long hairy. Sepals ovate $\frac{1}{8}$ inch long hairy. Corolla white, with yellow in the throat, tube 1 inch long base narrowed above somewhat abruptly swollen, broad nearly glabrous, lower lip longer than upper one. Stamens 2, filaments filiform, anthers oblong. Capsule $\frac{1}{18}$ inch long, moderately thick pubescent.

Pahang, Tahan River woods (Ridley 2152); Selangor, Bukit Hitam (Kelsall).

Distrib. Borneo.

This is closely allied to *D. platypus* but is distinct in its glabrous upper surface of the leaves shorter and broader flower, broader sepals, and shorter thicker fruit. I believe it is identical with the plant described by Mr. Clarke.

*29. D. quinquevulnera*, Ridl., Trans. Linn. Soc., l.c. 328.

Stem woody 6 to 9 inches tall or less, covered with brown wool. Leaves lanceolate acuminate acute serrate narrowed to the base silky pubescent dark green 6 inches long 2-2½ inches wide. Peduncles slender rosy white-ciliate. Flowers numerous. Sepals lanceolate acute. Corolla tube slender dilated forwards 3 inches long white, two lipped lobes rounded crimson or violet purple edged with white with yellow streaks in the throat. Stamens rather thick sinuate, white, anthers reniform ovary cylindric pubescent. Stigma cordate. Capsule cylindric acuminate 3½ inches long.

Pahang, Kota Glanggi, Tahan Woods, abundant (Ridley 2154 and 2144); Selangor, Pahang Track 15th mile (Ridley 8559).

Endemic. A most beautiful and floriferous plant, but very impatient of cultivation, often growing in great abundance on banks at low to about 1,500 feet elevation.

*30. D. atrosanguinea*, Ridl. Trans. Linn. Soc. l.c. 328.

Stem woody 6 inches tall, ¼ inch thick. Leaves lanceolate acute crenulate denticulate or dentate, base

broad 9 inches long, 4 inches wide, deep green velvety pubescent above, glaucescent, pubescent beneath with elevated nerves and nervules. Peduncles 3 inches long pubescent. Bract ovate. Sepals linear acute ¼ inch long pubescent red. Corolla pubescent deep red, yellow in the mouth, tube 2 inches long dilate upwards, lobes subequal ovate obtuse. Stamens 2 filaments sinuous rather thick, anthers semiovate. Style longer than the stamens pubescent. Stigma rounded.

Pahang, Tahan woods (Ridley) and Tringanu.

Endemic in woods.

*31. D. hirsuta*, n.sp.

Stem woody over a foot long, branched, densely hairy above with long multicellular hairs. Leaves alternate lanceolate acuminate narrowed to the base petioled or hardly so crenate densely hairy on both surfaces, 6 inches long 1½ inch wide, petiole ½ inch long or less. Flowers solitary on the peduncles in the lower and upper axils. Peduncles very slender hairy 1 inch long. Sepals short ovate lanceolate obtuse. Corolla narrow an inch and a half long yellow pubescent. Capsule very narrow cyclindric pubescent 3 inches long.

Perak, Goping (King's Coll. 715), Larut Hills (King's Coll. 2529).

The Larut Hills plant is much less hairy than the one from Goping but it appears to be the same. The distant leaves are unique in this section.

*32. D. bombycina*, n.sp.

Stem branched woody 3 to 4 feet tall above closely silky pubescent. Leaves lanceolate acuminate 4-6 inches long 1 inch across narrowed to the base minutely crenulate densely silky pubescent, on both sides, nerves very numerous and close. Pedicels short 1 inch long slender, silky. Sepals ovate acute small silky. Corolla tube 1 inch long sparingly pubescent. white tinged with pink or blue trumpet shaped.

Perak, Ulu Bubong 4-600 feet alt. (King's Coll. 10587).

Endemic. Near *D. crinita*, but very different in appearance, much taller with narrower leaves and soft silky grey pubescence. The flowers are also smaller.

*33. D. crinita*, Jack, Mal. Misc. 1, 11, p. 1; Linn. Trans. V, 14, p. 33, t. 3, f.2; Calc. Journ. Nat. Hist. 4, p. 53, t. 15, fig. 2.

Stem woody pubescent 6 inches tall. Leaves narrow lanceolate acute, narrowed to the base shortly and closely serrate 6 inches long 1 inch wide dark green above sometimes with a white longitudinal bar covered closely with short velvety hair, beneath purple with longer hair especially on the nerves. Peduncles about 1 inch long villous, pedicels ¼ inch. Bracts linear all villous. Sepals narrow lanceolate acute villous ⅛ inch long. Corolla white or usually pale blue 1½-inch long pubescent tube narrowed at the base dilated forwards lobes large rounded subequal. Stamens filaments filiform curved anthers oblong with short lateral processes. Style and ovary cylindric pubescent. Stigma discoid. Capsule slender cylindric 2-3 inches pubescent.

Spreng. Syst 2, p. 837, R. Br. Benn. Pl. Jav. Rar. p. 118; Ann. Sc. Nat. 2. Vol. 13, p. 164; Hook, Bot. Mag. t. 4554; Miq. Fl. Ind. Bat. 2, 724; Clarke, Monogr. l.c.93.

Pahang, Raub Track (Machado, H.B.S. 11575), Tahan Woods (Ridley 2169), Sungei Ujong, Bukit Sulu (Cantley); Selangor, Ginting Bidai (Ridley 7577); Perak, Larut Hills (Scortechini 294 and Ridley 2907) King's Collection 2157), Tapa (Curtis 3781); Penang, West Hill (Curtis 410, Deschamps); Kedah, Gunong Terai (Ridley), Tomoh (Machado); Kelantan, Kwala Lebir (Dr. Gimlette).

Var. *Curtisii*.

Leaves oblanceolate acute serrate deep green with a silvery central bar, covered with long multicellular hairs from a swollen base on both sides very dense and longer

tall, with a few one flowered short branches. Bracts linear oblong. Sepals linear oblong, pubescent. Corolla not seen. Ovary cylindric pubescent. Style pubescent. Stigma small capitate. Capsule cylindric pubescent 1 inch long splitting nearly to the tip.

Johor, Gunong Janeng (Kelsall).

Endemic.

*37. D. salicina* Ridl., Trans. Linn. Soc. l.c. 329.

A small shrubby plant 3 to 6 inches tall simple or branched glabrous below pubescent above. Leaves numerous crowded above opposite narrowly lanceolate acuminate glabrous serrate, 3-4 inches long, $\frac{1}{2}$ inch wide, pale green above reddish beneath petiole slender $\frac{1}{2}$ inch long or less. Peduncles numerous crowded in the upper axils very slender glabrous red 2 inches long, branches few divaricate pubescent. Flowers very small $\frac{1}{8}$ inch long pink. Sepals very narrow linear pubescent. Corolla campanulate, lobes ovate acute. Stamens 2, filaments short slender, anthers reniform. Style longer than the corolla, glabrous. Stigma small capitate. Capsule cylindric acuminate $\frac{3}{4}$ inch long.

Pahang, Tahan River (Ridley 2166). Endemic, stream banks in woods.

*38. D. serrata*, n.sp.

Stem woody 6 inches or less long. Leaves numerous lanceolate acute, strongly toothed, teeth $\frac{1}{8}$ inch long acute, velvety green above, pale beneath, nerves 40 pairs, 8 inches long 1 inch wide, narrowed at base not petioled glabrous above, midrib with pale hairs beneath. Scape slender hairy 3 inches long. Flowers 4 or 5 nearly sessile. Sepals ovate short hairy. Corolla trumpet-shaped $\frac{3}{4}$ inch long narrowed at base dilated upwards lower lip longer than upper one, $\frac{1}{4}$ inch wide 3 lobed, side lobes rounded median longer oblong, white stained with purple outside, yellow in the mouth. Capsule very slender over 1 inch long pubescent pedicelled.

Perak, Larut Hills on rocks in dense forest, below the Tea Gardens, at about 1,000 feet altitude (Ridley).

*39 D. pectinata*, Clarke, Hook. Ic. Pl., t. 2246.

Small shrubby plant, 6 inches or more tall branched or simple. Leaves densely crowded at the top glabrous deeply pinnate 6-7 inches long, lobes $\frac{3}{8}$ inch long $\frac{1}{8}$ inch wide at the base, blunt. Peduncles from the upper axils several, pubescent 2 inches long. Calyx "dark blue." Carolla white tomentose $\frac{1}{3}$ inch long tube cylindric slightly inflated, upper lobe obovate rounded. Stamens 2. filaments curved, anthers oblong. Staminodes absent. Disc tubular. Capsule $\frac{1}{2}$-$\frac{3}{4}$ inch long pale glabrous rather thick curved.

Selangor, Rawang (Ridley 7579), Bukit Hitam (Kelsall, H. B. S. 1981); Perak, limestone rocks 4-800 feet alt. (King's Coll. 10711).

Endemic, local banks of streams and rocks.

*D. myricaefolia*, n.sp.

Stem woody 4 to 6 inches long. Leaves crowded at the opposite or alternate narrowly oblong or oblong lanceolate, acute, base narrowed, bluntly serrate 3-6 inches long $\frac{1}{4}$-$\frac{3}{4}$ inch wide, above sparingly sprinkled with hairs, midrib more hairy, beneath reddish, midrib and nerves and reticulations hairy, nerves 24 pairs, petiole $\frac{3}{8}$ inch long red hairy. Scapes slender 3 inches long hairy 1-4 flowered. Sepals linear hairy $\frac{1}{8}$ inch long. Corolla tube cylindric narrow half an inch long. Capsule narrow straight cylindric pubescent 1 inch long.

British North Borneo, Bongaya, Labuk Bay (Ridley).

Allied to *D. salicina* but with very different foliage.

§ *6. Acaules.*

*40. D. violacea*, Ridl., Journ. Linn. Soc, XXXII, 509.

Rootstock short, erect stem an inch long densely woolly. Leaves numerous very unequal ovate to lanceo-

late acute oblique toothed, sessile or petioled densely softly hairy 2-8 inches long 1¼ to 2½ inch wide narrowed at the base, petiole as much as 2 inches long. Panicles 2-5 inches long lax, branches slender pubescent. Calyx lobes oblong lanceolate ⅛ inch long glabrous. Corolla tube trumpet-shaped curved ½ inch long violet, upper lobes short recurved lower ones ¼ inch longer. Stamens 2, filaments filiform. Ovary long terete. Style short. Stigma clubbed. Capsule glabrous cylindric ¾ inch long.

Perak, Hermitage Hill at 5000 feet elevation, on rocks in the stream (Ridley 2909).

Endemic. A very curious plant the affinities of which are quite doubtful.

*41. D. lacunosa*, Hook. fil., Bot. Mag., 7236.

Stemless. Leaves crowded oblong or ovate cordate tomentose petioled crenulate 2-4 inches long 1½-3 inches across above pubescent, beneath rusty tomentose especially on the elevated nerves, petiole 2-4 inches long rusty tomentose. Scapes 4-6 inches long 2 to many flowered simple or 3 or 4 branched at the top branches ½ inch long. Flowers nodding. Corolla an inch long deep violet blue, tube narrow at the base gibbous inflated upwards, lobes short rounded subequal. Stamens included curved swollen near the base narrowed upwards, anthers elliptic not horned. Staminodes filiform ⅓ as long. Pistil linear pubescent gradually narrowed into the style. Stigma very shortly bifid. Capsule 2 inches long linear.

Lankawi, Terutau on damp rocks (Curtis 1655).

Endemic.

*42. D. Perdita*, n. sp.

Stem creeping woody about 4 inches long. Leaves elliptic obtuse rounded peltate margins crenulate 3 inches long 1½ inch wide above scabrid and sprinkled over with hairs, beneath glabrous except for the midrib and nerves

which are hairy with appressed hairs, margin with hairs on the crenulations, petiole 1-2 inches long hairy. Peduncles slender 4 inches long, subterminal hairy. Calyx lobes lanceolate pubescent. Corolla not seen. Capsule half an inch long narrowed suddenly into the style and only splitting as far as the base of the style. Stigma subbilobed large.

Singapore, Selitar very rare (Ridley).

I found two plants of this together in a small ravine near Selitar in 1889, one in fruit. Since then the locality has been destroyed by cultivation and the plant has disappeared and is probably extinct as these plants are very local in their distribution and I have never seen anything like it elsewhere.

*43. D. puncticulata*, Ridl., Journ. Linn. Soc., XXXII, 510.

Almost stemless. Leaves crowded elliptic or obcuneate or nearly oblanceolate, inaequilateral base truncate, crenate puncticulate hispid, 3 inches long 1½ inch wide or smaller, nerves beneath elevated hairy. Peduncles subterminal 3 inches long slender thickening in fruit, hairy. Sepals lanceolate acute $\frac{1}{16}$ inch long hairy. Corolla ¼ inch long hairy violet, tube short broad campanulate, lower lip longer than the upper one, lobes oblong obtuse. Stamens very short filaments thick, anthers large conic shield shaped. Style longer pubescent. Capsule ½ inch long thick hispid.

Johor, Gunong Panti (Ridley).
Endemic.

*44. D. heterophylla*, Ridl., Trans. Linn. Soc. l.c. 329.

Stem short with a long woody root, woolly above. Leaves crowded very variable in size obovate oblique or lanceolate, crenulate obtuse, 4 inches long 1½ inch wide or less, above dark green purplish in the centre, glabrous, beneath reddish nerves raised covered with red wool on the back. Peduncles slender hairy 3 inches long, branches short and few. Flowers few

small. Sepals linear pubescent $\frac{1}{8}$ inch long. Corolla campanulate $\frac{1}{4}$ inch long violet pubescent. Style longer, pubescent. Capsule cylindric curved acuminate 1 inch long glabrous, splitting for nearly the whole length.

Pahang, Tahan River (Ridley 2170); Johor, Gunong Janeng (Kelsall).

Endemic. This and the two preceding species belong to a set more characteristic of Borneo and the intermediate islands than of the peninsula.

*45. D. pumila*, n.sp.

Stem slender woody 1-3 inches long. Leaves crowded at the top elliptic obovate obtuse narrowed at the base and inaequilateral $\frac{1}{2}$-$1\frac{1}{2}$ inch long $\frac{1}{4}$-1 wide above silky pubescent beneath dotted with swollen hair-bases, nerves about 6 pairs elevated hairy with appressed hairs. Peduncles slender erect purple with silky appressed white hairs 2-3 inches tall subterminal. Flowers 1-2 terminal very shortly pedicelled. Bract linear purple. Calyx lobes linear purple pubescent. Corolla $\frac{1}{4}$ inch long with a short broad tube pubescent purplish white hardly bilabiate lobes rounded pinkish white. Stamens 2, filaments slender short filiform. Ovary slender cylindric. Style longer than stamens. Stigma discoid. Capsule $\frac{3}{4}$ inch long terete upcurved splitting along the upper edge minutely pubescent.

Selangor, The Gap—Semangko Pass, alt. 3000 feet (Curtis 3782) (Burn-Murdoch).

Endemic. On mossy banks.

*46. D, lilacina*, Ridl., Trans. Linn. Soc., l.c.p. 330.

Stem 12-15 inches long, entirely leafy brown pubescent. Leaves alternate spreading lanceolate crenate dentate pubescent dark green pubescent, 4 inches long 1 inch wide, petiole 1 inch long. Pedicels numerous rising from the petiole near the leaf blade slender $\frac{1}{4}$ inch long pubescent. Sepals very short lanceolate hispid. Corolla campanulate rosy violet sparingly pubescent, lobes

oblong rounded. Stamens 2, filaments thick with slender bases, anthers reniform. Style shorter than the corolla pubescent. Stigma capitate. Capsule $\frac{5}{8}$ inch rather thick cylindric with a short beak.

Pahang, Tahan River (Ridley 2165).

Endemic. Quite unlike any other species of *Didymocarpus* known to me, and it might perhaps be generically distinguished.

*5. Chirita*, Buch-Ham.

Herbs or slender shrubs. Leaves opposite often unequal, or whorled or alternate elliptic or ovate. Peduncles axillary one or more flowered. Bracts free or connate, small or large, calyx 5 lobed with acute lobes, usually large. Corolla infundibuliform or tubular ventricose blue or white, two lipped, lobes rounded. Stamens 2, filaments filiform geniculate, anthers rounded connivent often hairy. Disc annular. Ovary cylindric linear. Style usually long. Stigma ovate or narrow, bifid. Capsule long cylindric.

Species 26. India, China and Malay Islands.

Bracts free.

| | | |
|---|---|---|
| Stem tall branched cymes axillary | 1. | *C. elata* |
| Stem 12 inches or less, cymes subterminal. | | |
| Leaves ovate. Corolla $1\frac{1}{2}$ inch long | 2. | *C. caliginosa* |
| Corolla $\frac{3}{4}$ inch long | 3. | *C. viola* |
| Leaves lanceolate alternate | 4. | *C. sericea* |
| Bracts connate | | |
| Tube $\frac{1}{2}$ inch long, limb short | 5. | *C. rupestris* |
| Tube very short, limb ovate | 6. | *C. Glasgovii* |

*1 Ch. elata*, Ridl., Journ. Linn. Soc., XXXII, 518.

A tall rough herb 2 feet high, stem angled branched. Leaves 3 to 6 inches long $1\frac{1}{2}$-3 inches wide ovate inaequilateral acute toothed, hairy, with elevated nerves

hispid, petioles slender 1 inch long, cymes lateral axillary 3 inches long hispid. Sepals lanceolate acuminate hairy $\frac{1}{8}$ inch long. Corolla funnel shaped hairy 1 inch long claret color, lobes short rounded subequal $\frac{1}{2}$ inch across. Stamens 2, filaments slender, anthers oblong. Staminodes short with abortive anthers. Ovary short pubescent. Stigma peltate sub-bilobed. Capsule straight cylindric.

Perak, Larut Hills (Wray 2985) (Curtis 2038) Ridley 2911).

Endemic. In banks in wood, a species very unlike the rest of the genus, but it is difficult to place it anywhere else.

2. *Ch. caliginosa*, Clarke, Mon. Phan., 122.

A soft herb a foot or more tall often branched. Leaves opposite ovate acuminate, base broad or cuneate very inaequilateral, margins entire or slightly toothed $2\frac{1}{2}$-4 inches long 1-2 inches wide closely pubescent, petiole $\frac{1}{2}$ inch long. Flowers several axillary, pedicels $\frac{1}{2}$-1 inch long pubescent. Sepals lanceolate acuminate hairy $\frac{1}{2}$ inch long. Corolla $1\frac{1}{2}$ inch long azure blue, tube narrow at the base broadly infundibuliform at the apex pubescent, lobes large rounded $\frac{3}{4}$ inch across the lips. Stamens 2, anthers globose covered with long hairs at base. Style slender pubescent. Stigma bilobed lobes linear. Capsule long 3 inches slender cylindric curved.

Selangor, Kuala Lumpur Caves (Beccari) (Ridley) (Curtis 2359); Perak, Kuala Dipang (Curtis 3109), Batu Kurau (Scortechini 1582).

On limestone rocks local but abundant. A beautiful plant.

Endemic. Beccari's locality is given (l.c.) as Klang like several other limestone rock plants from his collection doubtless obtained at the Kuala Lumpur Caves.

3. *Ch. viola*, Ridl., Journ. Linn. Soc., XXXII, p. 516.

A herb 2 to 10 inches tall pubescent. Leaves ovate acute crenate or serrate or entire very unequal 2-6 inches

long 1½-3 inches wide, petiole ⅛ inch long. Cymes short few-flowered. Flowers small pedicels ½ inch long. Sepals lanceolate acute hispid nearly ¼ inch long. Corolla ¾ inch long violet, tube narrow at the base thin dilate trumpet-shaped, upper lobes short rounded, lower ones ovate obtuse longer, median one longest elliptic, all violet with darker streaks a patch of yellow glandular hairs in the mouth. Stamens 2 exsert, anthers yellow ovoid with a thickened connective, ciliate at the base, with a black spot on each anther, filaments attached to the mouth of the tube. Ovary pubescent. Stigma obliquely bifid, lobes linear obtuse. Capsule terete acute 1½ inch long minutely pubescent.

Lankawi Islands (Curtis 2570).

Distrib. S. Siam, on limestone rocks.

4. *Ch. sericea*, n. sp.

Herb 3-6 inches tall simple or branched woolly. Leaves alternate, lanceolate acute or acuminate base unequal cuneate 2-3 inches long ½ inch wide, margins entire, both sides densely covered with short silky hairs. Petiole ¼ inch to 1 inch long. Flowers 1-2 axillary pedicels ½ inch or less silky hairy, ebracteolate. Sepals narrow linear acuminate densely silky hairy. Corolla blue rarely white, tube half as long again as sepals. lobes broader unequal oblong all hairy Style slender glabrous. Stigma bilobed lobes elliptic. Capsule cylindric 1½ inch long, silky hairy.

Perak, Ipoh, limestone rocks (Curtis 3131).

*Var. Scortechinii.*

Capsule shorter ½ inch long, and thicker ⅛ inch through splitting longitudinally into 2 valves. Corolla tube straight, lobes of lower lip broad.

Perak, (Scortechini 112*b* and 102*b*).

Endemic.

5. *Ch. rupestris*, n. sp.

A herb about 4-10 inches tall, stem simple or branched glabrescent. Leaves opposite or alternate thin ovate

obtuse 1-3 inches long $\frac{1}{2}$-$2\frac{1}{2}$ inches wide above sprinkled with multicellular hairs. Flowers axillary on a peduncle $\frac{1}{2}$ inch long hairy 1-2 sessile enclosed in a green cupular bilobed bract $\frac{1}{2}$ inch long edges recurved and covered with multicellular hairs. Sepals narrowly lanceolate linear hairy nearly $\frac{1}{2}$ inch long. Corolla tube as long as the bract, hairy blue, little longer than the sepal lobes, rounded. Style and ovary slender hairy. Capsule cylindric slender curved $2\frac{1}{2}$ inches long.

Lankawi on damp rocks (Curtis 2120).

Endemic.

6. *Ch. Glasgovii*, n.sp.

A weak herb one foot tall branched. Leaves ovate obtuse thin, 1-3 inches long $\frac{3}{4}$-2 inches wide, base rounded, retuse nerves 5 pairs alternate, above sprinkled with multicellular hairs, beneath paler with a few hairs on the nerves otherwise nearly glabrous, petiole slender 1-2 inches long glabrous. Bract convolute bilobed, lobes ovate hairy 1 inch long. Sepals lanceolate acuminate narrow hairy $\frac{1}{2}$ inch long. Corolla tube 1 inch long minutely hairy dark violet. Capsule cylindric curved 3 inches long glabrous.

Perak, Waterloo near Kuala Kangsa (C. Robertson-Glasgow).

Endemic.

*Ch. Forbesii*, n.sp.

Stem over a foot tall zigzag, internodes $1\frac{1}{4}$ inch long glabrous. Leaves alternate ovate acuminate 6 inches long 3 inches across base unequal, sprinkled on both sides with sport pale conic multicellular hairs, petiole $\frac{1}{2}$-$\frac{3}{4}$ inch long angled and ribbed. Peduncles axillary on both sides of the stem, slender short $\frac{1}{4}$-$\frac{1}{2}$ inch long hairy bearing 2 or 3 flowers on short pedicels. Bracts ovate hairy not connate $\frac{1}{2}$ inch long caducous. Calyx tubular cylindric $\frac{1}{2}$ inch long shortly lobed with 5 ovate lobes. Corolla white $\frac{3}{4}$ inch long pubescent. Stigma bifid with

ovate lobes. Disc cylindric short. Capsule cylindric 3 inches long. Style short.

Sumatra, side of Lintang river edge of forest (Forbes 2579 and 40). Straggling shrub. Flowers white, alt. 900 feet.

Endemic.

### *6. Loxocarpus*, Br.

Herbs scapigerous. Leaves ovate or oblong petiolate pubescent. Flowers 1 or more in a peduncled cyme, blue. Sepals 5 free to base or nearly so. Corolla campanulate small hardly bilabiate, lobes rounded. Stamens 2, filaments short thick sinuate, anthers reniform large. Ovary oblong. Style longer than stamens. Stigma capitate. Capsule follicular conic dehiscing along the upper edge.

Species 7. Malay Peninsula and Borneo.

| | |
|---|---|
| Flowers 1 or 2 | 1. *L. semitorta* |
| Cymes dichatomous many flowered | |
| Capsule short and broad | 2. *L. incana* |
| Capsule horn shaped | 3. *L. cærulea* |

*1. L. semitorta*, Ridl.

Stemless. Leaves numerous ovate or oblong obtuse rather thick base broad ½-1 inch long ¼-¾ inch wide above green silky, beneath with thick red woolly raised nerves, petiole 1-2½ inches long thick red woolly. Scapes slender 2-2½ inches long silky. Flowers 1 or 2. Calyx lobes lanceolate hairy ⅛ inch long. Corolla ½ inch long tube broad oblique pale blue with violate streaks in the throat, lobes very short and indistinctly marked. Stamens filaments short curved anthers reniform purple. Style and ovary hairy shorter than corolla, larger than stamens. Capsule ¼ inch long horn shaped acuminate with the persistent style, base swollen.

*Didymocarpus semitorta*, Clarke, Mon. Phan. p. 99,

Malacca, Mt. Ophir. (Griffith 3836) (Maingay 1220) (Ridley 3184) and all collectors.

Endemic. On rocks in the stream, "The Mount Ophir Violet."

2. *L. incana*, R.Br. Benn. Pl. Jav. Rar. 115, 120 Ann. Nat. Sci. 2, Vol. 13, p. 167.

Stemless. Leaves ovate cordate serrulate subacut silky tomentose above and beneath 1-3 inches long $\frac{3}{4}$-$1\frac{1}{2}$ inch wide petiole $\frac{3}{4}$-1 inch long. Peduncles 2-4 inches long above dichotomously branched viscid hairy. Flowers few or numerous. Calyx lobes lanceolate pubescent hairy white tinted green. Corolla tube straight thick upper lobes oblong recurved, lower lobes oblong, blue, filaments straight, pistil conic, style stout. Stigma capitate. Capsule ovoid tip upcurved, hairy.

Miquel, Fl. Ind. Bat. 2, 737, *L. alata*, A. De C., Prodr. 9, p. 277.

*Didymocarpus incana*, Benth. and Hook, Gen. Pl. 2, 1022; Clarke, Monog. p. 98.

Penang, Govt. Hill. Waterfall (Curtis 297) (Maingay 1228) (Wallich 809, *Loxonia? alata*); Selangor, Bukit Kutu (Ridley); Perak, Hermitage Hill (Ridley); Bujong Malacca (Ridley 9782). A very small form with remarkable slender peduncles.

Endemic. On rocks.

3. *L. caerulea*, *Didymocarpus caerulea*, Ridl., Journ. Linn. Soc., XXXII, 513.

Stemless or nearly so. Leaves several ovate base cordate serrate inaequilateral long petioled 2-6 inches long $1\frac{1}{2}$-4 inches wide, silky hairy above tomentose beneath. petiole 2-8 inches long pubescent. Peduncles 6-12 inches tall viscid hairy. Cymes compact or branched with 2 or 3 branches, 2 inches long. Flowers numerous. Bracts lanceolate narrow. Sepals lanceolate narrow shorter than the tube. Corolla pubescent 2 lipped $\frac{3}{8}$ inch

long as wide, tube short broad campanulate, upper lobes oblong obtuse, lower ones truncate, median one longer, blue with a violet mouth. Stamens exsert, filaments suddenly thickened in the middle sigmoid, anthers connate deep violet. Style slender. Capsule $\frac{3}{8}$-$\frac{1}{2}$ inch long lanceolate acute hornshaped upcurved viscid.

Perak, Larut Hills at 5000 feet alt. (Ridley) (King's Coll. 6990) (Scortechini 1427), Gunong Bubu (Wray 3809); Selangor, Bukit Hitam (Kelsall).

Endemic. On rocks.

### 7. *Paraboea.*

Herbaceous plants or with a shrubby stem. Leaves usually in a rosette tomentose or hairy. Flowers small white or pink in simple or panicled cymes, peduncle usually long calyx small. Corolla white explanate campanulate with a very short tube, distinctly two lipped or nearly regular, lobes equal oblong or unequal blunt. Stamens 2 fertile, filaments thick short, anthers large 2-celled connivent by the tips. Disc none. Ovary sessile. Style longer than the stamens stout. Stigma small capitate. Capsule straight narrow slender not twisted splitting longitudinally.

Species about 20. Siam-Malaya.

1. *Campanulatae.* Corolla campanulate.

| | |
|---|---|
| Panicle large many flowered. | |
| Leaves hairy | 1. *P. cordata* |
| Flowers few 2 or 3 only | |
| Leaves almost or quite glabrous | |
| Leaves elliptic nearly entire | 2. *P. campanulata* |
| Leaves ovate crenate | 3. *P. Scortechinii* |
| Leaves lanceolate linear | 4. *P. caerulea* |
| Flowers very small crowded in a head few. Leaves pubescent | 5. *P. pyroliflora* |

2. *Breviflores.* Corolla tube very short.

| | | |
|---|---|---|
| Cyme compact<br>Corolla not 2 lipped, lobes equal<br>Leaves ochreous beneath | | |
| Flowers in a simple head | 6. | *P. capitata* |
| Inflorescence branched | 7. | *P. ferruginea* |
| Leaves purple beneath | 8. | *P. regularis* |
| Branches of cyme slender<br>Corolla lobes subequal | | |
| Back of leaves ochreous tomentose | 9. | *P. polita* |
| Back of leaves red woolly | 10. | *P. vulpina* |
| Lower lip of corolla longer than upper<br>Leaves spathulate coarsely dentate | 11. | *P. laxa* |
| Leaves oblong elliptic crenate | 12. | *P. Curtisii* |
| Leaves yellow beneath | 13. | *P. obovata* |

1. *P. cordata*, Ridl.

A tall herb 2 feet high stem pubescent. Leaves opposite ovate acuminate inaequilateral at base dentate sparingly hispid above and beneath, nerves 10 pairs hairy beneath 6-7 inches long, 4 inches wide petiole 1 inches long. Peduncles stout 6-8 inches long pubescent bearing a spreading panicle 4-6 inches long. Bracts in pairs at the base of each bifurcation ovate glabrous $\frac{1}{8}$ inch long. Pedicels slender $\frac{1}{4}$ inch long glabrous. Sepals lanceolate free to base glabrous $\frac{1}{8}$ inch long. Corolla campanulate $\frac{1}{2}$ inch long white tinted violet lobes short equal rounded, with 2 rows of glands on each. Stamens 2, filaments short anthers subglobose large. Staminodes minute pistil slender glabrous no disc. Capsule sausage shaped 4 angled $1\frac{1}{2}$ inch long glabrous rather thick splitting on two sides. Seeds minute deep red oblong.

*Didymocarpus cordata*, Jack, R. Br. Benn. Pl. Jav. Rar. p. 119; Ann. Sc. Nat. 2, Vol. 13, p. 164; Dec. Prodr. 9, p. 265; Miq. Fl. Ind. Bat. 2, p. 726; Clarke, Mon. Phan. l.c. 84, t. IX.

Penang (Wallich 781) (W. Fox) (Curtis 452) (Maingay 1224); Perak, Larut Hills) (Scortechini 296 and 400*a*) (Ridley 2913 and 10682) (King's Coll. 2227, 2331 and 6378).

Common on rocks, alt. 2-6000 feet.

Native name "Bunga Chimba." Endemic.

Var. *debilis*, Ridl., Trans. Linn. Soc., l.c. 514. Rhizome fleshy, stem 6 inches tall pubescent. Leaves thin ovate oblique, base obtuse, apex acute or subacute, margin crenate dentate, sparingly hispid 1½-4 inches long 1-2 inches long. Panicle 4-6 inches long glabrous weak, few branched branches short and thin. Bracts ovate. Flowers smaller.

Kedah, Gunong Jerai (Ridley).

Var. *ophirensis*, Ridl., l.c.c.

Tall and weak. Leaves thin lanceolate subacute or acute narrowed at the base 6 inches long 2 inches wide. Panicle weak glabrous. Bracts lanceolate. Flowers smaller, white. Fruit smaller curved ⅜ inch long.

Malacca, Mount Ophir. On a big cliff in the forest below Padang Batu (Ridley 3183).

2. *P. campanulata*, n.sp.

Stem slender herbaceous a foot tall shortly hairy. Leaves opposite in distant pairs elliptic acute entire or obscurely crenulate, above glabrous except the edge fringed with multicellular hairs beneath, glabrous except the midrib and elevated nerves about 12 pairs scurfily hairy 2½-3½ inches long 1¼ inch wide, petiole scurfy hairy ⅛-⅜ long. Peduncles subterminal 1½ inch long 1 flowered refous hairy. Bracts 2 alternate linear minute. Pedicel ½ inch. Sepals linear hairy ⅛ inch long. Corolla campanulate half an inch long apparently white, lobes broad rounded. Stamens 2 very short anthers subglobose. Style slender pubescent. Capsule (unripe) cylindric velvety ¾ inch long including the style.

Selangor. Above the Gap on the road to the Sempang mine 3-4000 feet (Curtis), a single specimen.

A very distinct plant of a weedy habit with solitary flowers of the type of *P. cordifolia*.

3. *P. Scortechinii*, n.sp.

Stem herbaceous glabrous. Leaves opposite ovate acuminate, base rounded inaequilateral, margins crenate, quite glabrous, nerves 8 pairs, 3-3½ inches long 1-2½ inches wide, petiole ½ inch long. Peduncle slender erect subterminal 3 inches long glabrous, branches dichotomous few 1 inch long. Flowers solitary on the ends of the branches. Sepals free almost to the base oblong obtuse ⅛ inch long glabrous, fleshy. Corolla campanulate ½ inch long glabrous lobes rounded. Anthers broad elliptic, filaments very short.

Perak, (Scortechini no number or locality). A single incomplete specimen. The plant is allied to *P. cordifolia* of which it has quite the flowers, but the whole thing is quite glabrous.

4. *P. caerulea*, n.sp.

Stem woody 3-4 inches long ⅛ inch through. Leaves crowded at the top narrowly lanceolate linear acuminate narrowed gradually to the base 4-5 inches long ¼ inch wide above dark green nearly glabrous, midrib prominent, beneath pale dark green nearly glabrous, midrib prominent, beneath pale cinnamon color, nerves about 30 pairs joined at the tips. Peduncles slender axillary 4 inches long pubescent 1-2 flowered. Sepals linear ⅛ inch long obtuse. Corolla campanulate ½ inch long and nearly as wide at the base pubescent, base pale, lobes deep blue, lobes rounded. Stamens 2, filaments very short sigmoid, anthers broad rounded oblong. Style fairly stout. Stigma heart shaped. Capsule very narrow cylindric 1 inch long.

Tringanu, Bundi (E. Rostado). The upper part of the stem among the leaves is covered with silvery hairs.

The habit of this plant is quite that of *Stilpnothrix ornata* (*Didissandra ornata*, Clarke) a native of Borneo, but it has only 2 not 4 stamens. It differs very much in habit from all others of the genus.

5. *P. pyroliflora*, Ridl.

Stem woody 3 inches tall or more, pubescent. Leaves alternate, ovate or ovatelanceolate acuminate at both ends 3-4 inches long 1½ inch wide entire bright green, silky pubescent above, beneath paler, petiole over an inch long pubescent. Peduncles several from the upper axils erect 3-4 inches long shortly hairy. Sepals lanceolate short pubescent. Corolla campanulate funnell shaped white ⅜ inch long lobes short rounded. Stamens 2, filaments short and thick, anthers large elliptic. Style thick curved upwards longer than the corolla. Stigma very small capitate. Capsule spreading an inch long terete, terminated by rather a long style, glabrous.

*Didymocarpus pyroliflora*, Ridl., Trans. Linn. Soc., p. 330.

Pahang, Tahan river woods (Ridley 2164).

Endemic.

6. *P. capitata*, n.sp.

Stemless, or with a stout rootstock. Leaves in a rosette orbicular base rounded subpeltate 6 inches long 5 inches wide bright green glabrous above ocre yellow beneath tomentose, nerves raised reticulate, petiole stout 2 inches long. Peduncle slender 8 inches tall. Flowers numerous in an umbell at the top, with two broad blunt oblong bracts ¼ inch long, below. Pedicels ½ inch long. Calyx campanulate lobes linear oblong obtuse ⅛ inch long green hairy Corolla ½ inch across lobes subequal rounded, white. Filaments very short straight, anthers reniform. Style curved up longer white. Capsules spreading linear straight beaked 1½ inch long.

Perak, Bujong Malacca (Curtis 3215), Kamuning (Machado) on limestone rocks.

Var. *oblongifolia*. Leaves oblong narrowed at the base.

Perak, Kuala Dipang and Sungei Siput (Curtis 3107), Tambun (Ridley 9832), Batu Kurau (Scortechini 1581 and 4325), Goping (King's Collection 456).

Endemic. The leaves are very variable. In one plant from Sungei Siput the leaves are narrowly lanceolate tapering acutely into the petiole, 9 inches long by 2 inches wide. In some plants the bracts at the base of the cyme are developed into very small leaves of the shape and coloring of the basal leaves.

7. *P. ferruginea*, n.sp.

Stemless or nearly so. Leaves in a rosette ovate cordate obtuse crenulate above covered with scattered hairs, below tomentose with longer hairs paler nerves elevated, 3 inches long 2½ inches wide, petiole 1½-2 inches long. Peduncles 3 inches long ferruginous-tomentose. Cyme compact scorpioid ferruginous-hispid. Calyx lobes as long as the corolla green ferruginous-hispid lanceolate. Corolla tube very short limb explanate not bilabiate lobes broad obovate obtuse subequal and similar, white or tinted with rose. Stamens 2 short, filaments broad spathulate thick, apex three toothed, anthers conic connate by the lips. Style no longer. Ovary conic. Stigma rounded entire discoid.

Lankawi on damp rocks (Curtis 2566).

Endemic.

8. *P. regularis*, Ridl.

Stem woody 1½ inch long. Leaves crowded at the top very unequal oblong lanceolate obtuse base cuneate inaequilateral crenulate dark green glabrous above purple minutely tomentose beneath with elevated nerves 3 inches long 1½ inches wide, petiole 1½ inch long tomentose. Peduncles slender pubescent an inch long, branches very short and slender ¼ inch long umbelled brown tomentose. Bracts lanceolate obtuse. Flowers few very

small very shortly pedicelled. Calyx lobes lanceolate brown tomentose as long as the corolla tube. Corolla hardly ¼ inch across white lobes oblong obtuse equal not bilabiate. Stamens 2 filaments sigmoid thick, anthers rounded ovaid. Style longer. Stigma capitate. Capsule ½ inch long cylindric scabrid rather thick, straight.

*Didymocarpus regularis*, Ridl., Journ. Linn. Soc., XXXII, 515.

Lankawi Islands (Curtis).

Endemic.

9. *P. polita*, n.sp.

Stemless. Leaves in a rosette ovate crenate obtuse, base rounded above deep shining green, beneath ocreous tomentose with nerves and nervules reticulate 7-8 inches long 4-4½ inches wide, petiole 4 inches long. Peduncle over a foot long slender with brown ocreous fur, branches few 3 inches long, umbellate. Bracts linear oblong obtuse brown woolly. Pedicels ¼ inch long. Calyx lobes linear green ⅛ inch long. Corolla subbilobed ½ inch across white back tinted pink, lobes rounded. Stamens, 2, filaments thickened at the base, anther orange reniform. Style stout pink at base white above. Stigma capitate.

Perak, Bujong Malacca (Curtis 3214 part).

Perhaps a hybrid between *P. capitata* and *P. vulpina*.

Endemic.

10. *P. vulpina*, n.sp.

Stem 2 inches long thick covered with red wool. Leaves elliptic rounded at each end crenulate above sprinkled with pale multicellular hairs, beneath covered densely with branched rufous hairs arranged stellately, nerves beneath strongly elevated, 6 pairs, reticulations elevated 1½-3 inches long 1-2 inches wide, petiole 1-3 inches densely red woolly. Peduncles slender 6-8 inches long red, with a few branched hairs branches slender 1-3

inches long, trichotomous. Bracts very small linear obtuse glabrous. Sepals narrow linear glabrous. Corolla white ¼ inch across lobes rounded subequal. Stamens 2 anthers very large reniform. Style short thick. Capsule cylindric narrow glabrous.

Perak, Bujong Malacca (Curtis 3214), Hot Springs Ipoh (Curtis 3132).

Endemic. On limestone rocks.

*11. P. laxa*, n.sp.

Stem very short woody and thickly brown tomentose. Leaves obovate coarsely crenate serrate, narrowed at the base into the winged petiole 3-7 inches long 2-3 inches wide dull green densely hairy tomentose on both surfaces. Peduncle slender 5-6 inches long terminated by a much branched umbel of slender branches 3 inches long. Pedicels slender ⅛ inch long. Flowers numerous, bracts very small. Calyx shortly 5 cleft, lobes lanceolate short green. Corolla ¼ inch across white or tinted rosy, upper lobes broad oblong recurved lower lips shortly trifid central lobe broadest. Filaments short swollen in the middle, anthers yellow reniform. Style longer. Capsule linear cylindric straight ½ inch long tipped with the elongate style.

Lankawi at Kwah (Curtis 2571).

Endemic.

*... P. Curtisii*, n.sp.

Stemless. Leaves oblong elliptic crenate obtuse 6 inches long 2½ inches wide, above sprinkled with hairs, petiole rufous hairy 1½ inch long. Scapes 10 inches long rufous tomentose bearing an umbel of 4 or 5 branches at the top about 2 inches long. Bracts at base of umbel oblong obtuse ¼ inch long. Pedicels short rufous tomentose. Calyx lobes linear oblong obtuse hairy ⅛ inch long. Corolla ½ inch across white buds tinted pink, tube very short limb bilobed upper lobes short rounded, lower lobes larger. Stamens filaments very short thick curved,

anthers reniform triangular. Style much longer than stamens bent, ovary cylindric. Stigma wider discold. Capsule (unripe) cylindric acuminate straight.

Perak, Bujong Malacca (Curtis 3214).

Endemic.

*13.* *P. obovata*, n.sp.

Stem short. Leaves crowded at the top thin obovate blunt base cuneate 3 inches long 1½ inch wide thinly arachnoid on both surfaces, beneath yellowish, petiole ¼ inch long. Peduncle slender 3-6 inches long glabrous, branches few terminal. Bracts narrowly oblong obtuse. Sepals oblong obtuse glabrous. Corolla ¼ inch across lower lip longer than upper one lobes oblong rounded. Stamens 2, anthers reniform, filaments short and thick. Style short and thick. Stigma capitate.

Lankawi, Gunong Chinchang (Curtis).

One specimen only seen.

### *8. Boea*, Comers.

Herbs or shrublets with a woody stem. Leaves opposite or whorled, generally on the back. Peduncles axillary usually elongate, laxly or compactly cymose or panicled. Bracts small. Flowers large or small blue or white. Calyx of 5 narrow sepals. Corolla widely campanulate with a short tube usually distinctly billobed, lobes ovate obtuse.

Stamens 2 perfect with short curved thick filaments, anthers ovoid coherent, cells ovoid. Disc absent ovary sessile. Style as long glabrous above. Stigma smal capitate. Capsule slender cylindric or fusiform cylindric, when ripe spirally twisted. Seeds minute.

Species about 22. India, Siam, China and Malaya. Stems tall leafy, leaves woolly.

| | |
|---|---|
| Flowers 1½ inch across | 1. *B. paniculata* |
| Flowers under an inch across | |
| Leaves white beneath | 2. *B. verticillata* |

| | | |
|---|---|---|
| Leaves yellow brown beneath | 3. | *B. caerulescens* |
| Stem short white woolly about 6 inches, Peduncle as long | 4. | *B. elegans* |
| Stems short woolly | | |
| Peduncles shorter than leaves | 5. | *B. lanata* |
| Stems short woody, leaves crowded at the not top woolly | | |
| Peduncles no longer than leaves | 6. | *B. acutifolia* |
| Peduncle tall slender widely branched, Stems woody branched | 7. | *B. divaricata* |
| Peduncles shorter than the leaves | 8. | *B. suffruticosa* |
| Peduncles tall slender, branches umbellate | 9. | *B. parviflora* |

1. *B. paniculata*, Ridl., Journ. Linn. Soc., XXXII, 519.

Stem base woody 4 inches or more long ½ inch thick, above a rosette of leaves, upper part of stem 1-?feet long stout deeply grooved, white arachnoid, branches numerous whorled erect 6 inches long covered with brown wool. Leaves crowded in a rosette at the top of the woody portion of the stem lanceolate acuminate narrowed for a long distance at the base 6 inches long 1 inch wide above grey arachnoid, beneath greyish white with cinnamon colored raised nerves. Bracts 4 or 5 at each whorl of branches leafy. Flowers numerous pedicels ½ inch long. Sepals short lanceolate pubescent ⅛ inch long. Corolla tube very short limb 1½ inch wide blue, lobes large rounded unequal. Filaments short and thick ¼ inch long. Style curved as long. Capsule ¾ inch long thick.

Selangor, limestone rocks, Kuala Lumpur (Kelsall and Ridley 1970, 1976 and 8226); Perak, Sungei Siput (Curtis 3105), Kuala Dipang (King's Coll. 8271), Batu Kurau (Scortechini 1611).

Endemic. A superb plant growing in the cracks of limestone rocks.

2. *B. verticillata*, Ridl., Journ. Linn. Soc., XXXII, 519.

Stem base woody 3 inches or more long nearly $\frac{1}{4}$ inch in diameter, above herbaceous $1\frac{1}{2}$ feet tall 4 angled white arachnoid with branches whorled each whorl 3 inches or less apart. Leaves whorled lanceolate acuminate narrowed at the base into a petiole, 4 inches long $\frac{3}{4}$ inch wide or more, above grey arachnoid beneath white arachnoid with raised nerves. Bracts leafy $\frac{1}{2}$-$\frac{1}{4}$ inch long. Flowers numerous blue. Sepals lanceolate subulate arachnoid $\frac{1}{3}$ inch long. Corolla half an inch wide lobes rounded. Stamens very short, anthers pear-shaped. Style much longer straight. Capsule fusiform acuminate $\frac{1}{2}$ inch long.

Selangor, limestone rocks at Kuala Lumpur (Kelsall, Ridley 1975, 8551).

Endemic.

3. *B. caerulescens*, n.sp.

Whole plant over 2 feet tall, upper part of stem stout grooved woolly. Leaves oblanceolate subobtuse narrowed to the base above dark green densely pubescent, beneath ochreous covered with felted wool, 6-8 inches long $1\frac{1}{4}$-2 inches wide, petiole winged to the base or not. Panicle 2 feet or more long large, branches whorled yellow-woolly. Bracts below leaflike above linear narrow yellow. Calyx lobes lanceolate woolly. Corolla tube very short, limb $\frac{3}{4}$ inch across pale blue upper lobe shorter lobes rounded, lower lip unequally lobed longer, central lobe longest. Stamens 2 anthers reniform conic, large filaments short curved. Style bent on the cylindric ovary pubescent. Stigma large discoid. Capsule thick glabrous $\frac{3}{4}$ inch long.

Perak, Sungei Siput (Curtis 3137), Kinta (King's Coll. 7175, 7062, 8276).

Endemic.

*B. Havilandi*, n.sp.

Stem 18 inches tall 4 angled woolly. Leaves in whorls of three about 4 inches apart oblong lanceolate obtuse

sessile 8 inches long by 2 inches wide covered with a tomemtum, nerves inconspicuous. Panicles axillary and terminal in threes, about 3 inches long, peduncles woolly. Sepals lanceolate woolly 5. Corolla ½ inch across blue, lobes rounded. Stamens filaments short anthers large semiovoid thick style. Capsule pendulous cylindric 1 inch long ⅛ inch through.

Borneo, Sarawak, Braang (Dr. Haviland 641), Bau (Ridley 11724) on limestone rocks.

Endemic.

4. *B. elegans*, Ridl., Journ. Linn. Soc., XXXII, p. 522.

Stem about 6 inches long woody decumbent ⅛ inch thick arachnoid. Leaves whorled in threes ½-3 inches apart, lanceolate acute narrowed to the base 1-2½ inches long ¼-½ inch wide above grey arachnoid beneath cinnamon arachnoid. Peduncles from the upper axils slender glabrous 6 inches long. Cyme terminal 3 inches long with few slender branches. Calyx very short lobes lanceolate glabrous. Corolla half an inch across, with broad rounded lobes white pink in the mouth, anthers oblong. Style rather short. Stigma clubbed. Capsule 1 inch long glabrous linear acuminate.

Kedah, Gunong Jerai on granite precipices (Ridley).

Endemic. The only species I have met with not growing on limestone rocks.

5. *B. lanata*, Ridl., l.c. 520.

Stem short stout woody 2 inches long, curved with white wool. Leaves crowded lanceolate acuminate narrowed into a petiole arachnoid above densely woolly beneath 3 inches long ¾ inch wide, petiole woolly 3 inches long winged to base. Panicles few branched axillary dense an inch to 5 inches long. Calyx as long as the corolla tube, lobes lanceolate woolly outside. Corolla thin ½-¾ inch across glabrous rose-pink, lobes rounded anthers subglobose. Style thick. Capsule ½ inch long thick glabrous.

Lankawi, Dayong Bunting on limestone rocks (Curtis 2569).

6. *B. acutifolia*, Ridl., Journ. Linn. Soc., XXXII, p. 519.

Stem woody 3 inches or more long ¼ inch through internodes ½ inch long. Leaves crowded at the top oblanceolate acute, narrowed to the base 6 inches long 1½ inch wide above glabrous dotted beneath cinnamon arachnoid. Panicles axillary 6 inches long, peduncles arachnoid, branches short slender. Sepals 3 lanceolate acute ⅛ inch long arachnoid. Capsule cylindric acute glabrous ¾ inch long.

Lankawi, Goa Chinta (Curtis 2791).

Endemic.

7. *B. divaricata*, n.sp.

Stem about 4 inches tall thick and woody. Leaves in a rosette on the top oblanceolate crenulate obtuse narrowed into a winged petiole, nerves and nervules beneath elevated 15 pairs, above glabrous beneath covered with a thin brownish tomentum 7 inches long 2½ inches wide. Peduncles rather stout terete smooth 7-16 inches tall, branches umbelled decompound, a foot or more long. Pedicels of flowers $\frac{3}{16}$ inch long covered with brown fur. Calyx lobes lanceolate acute green glabrous shorter than the corolla tube. Corolla ¼ inch across pale lilac tube short dilated, limb bilabiate, lobes rounded. Stamens anthers connate rounded with acute bases filaments thick sigmoid. Style slender. Stigma horseshoe-shaped. Capsule cylindric strongly twisted 1 inch long.

Lankawi, Ayer Hangat (Curtis 3683).

Endemic.

8. *B. suffruticosa*, Ridl., Journ. Linn. Soc., p. 518.

A branching shrub 1-2 feet tall, with rather slender branches ⅛ inch through angled slightly arachnoid. Leaves scattered lanceolate subacute narrowed at the base 3 inches long ½ inch wide above nearly glabrous punc-

tate, beneath covered with brownish tomentum, nerves conspicuous, petiole ¼-½ inch long. Panicles axillary dense an inch long with short branches brownish woolly. Buds brown woolly. Calyx longer than the corolla tube. Sepals linear lanceolate thick tomentose outside. Corolla ¼-⅓ inch across white lobes short oblong rounded, anthers oblong obtuse. Capsule fusiform very thick ¼ inch long tipped with the long style.

Lankawi, on a small island north of Kwah (Curtis 3682 and 2565).

Endemic.

9. *B. parviflora*, n.sp.

Stem slender shrubby branching covered with ferruginous tomentum. Leaves lanceolate acuminate, base cuneate unequal 4 inches long 1-1¼ inch wide above glabrous, beneath covered with rusty wool, nerves elevated 11 pairs. Peduncle 6 inches long, slender glabrous, panicle umbellate of 6 slender branches in a terminal whorl, branchlets glabrous numerous slender. Bracts very narrow linear. Flowers very small numerous white, pedicels slender ⅛ inch. Sepals lenceolate glabrous 5. Corolla very small white, tube very short, lobes upper subacute lower ones oblong, anthers large reniform. Style shorter. Capsule very slender cylindric ¼ inch long terminated by the slender style.

Perak, Hot Springs at Ipoh and Sungei Siput, not common (Curtis 3134), Kinta (King's Coll. 7,108).

Endemic. On limestone rocks.

### 9. *Phylloboea*, Benth.

Herbs or half shrubby. Leaves opposite petioled. Cymes pedunculate many flowered. Bracts large conspicuous. Flowers large pink or blue. Calyx large 2 lipped, one lip 2 lobed, the other 3 lobed or of 3 large connate sepals. Corolla broadly campanulate 2 lipped 3-5 lobed. Stamens 2 short, anthers large rounded. Capsule lanceolate at length twisted.

Species 2, one Burmese, one Malayan.

*P. speciosa*, Ridl., Journ. Linn. Soc., XXXII, p. 522.

A shrub 1 or 2 feet tall, stems white tomentose. Leaves in distant pairs lanceolate acuminate 6 inches long 1½ inch wide, above glabrous, beneath white arachnoid, petiole 1 inch long. Peduncle stout lateral erect nearly a foot tall. Flowers sessile scattered. Bracts ovate lanceolate ½ inch long white arachnoid. Calyx of three sepals connate ovate oblong woolly ⅜ inch long. Corolla an inch long blue, tube broad, lobes 3 two oblong truncate, the third much broader. Stamens short not longer than the ovary. Style long woolly. Capsule 1 inch long lanceolate cylindric acuminate woolly.

Lankawi. Common on limestone rocks on the small islands. (Curtis 2564).

Endemic.

### *10. Boeica*, Clarke.

Herbs or half shrubby plants with the habit of *Boea*. Leaves oblong elliptic or lanceolate more or less tomentose or hairy. Inflorescence racemose or panicled, axillary. Flowers small lilac or white. Calyx 5 fid. Corolla tube very short, lobes subequal, rounded. Stamens 4, filaments very short, anthers rounded connivent. Style curved larger than the stamens. Capsule linear cylindric.

Species 4 or 5, Assam, Burma and Malay Peninsula.

Most of the few described species are based on flowerless specimens, and are all very similar, and closely resemble *Boea divaricata* in habit but the capsule is straight and not twisted. The type species however (*B. filiformis* Clarke) has 4 stamens instead of two.

The Malayan one described below, differs from these in habit, and I have seen no fruit, but there is no other genus to which it can be referred on account of its four very short stamens arranged in a circle round the pistil. The only other genus allied to it is *Platystemma*, a Himalayan plant with distinctly two-lipped flowers.

*B. brachyandra*, n.sp.

Stemless. Leaves obovate serrate hairy dark green, obtuse 3 inches long by 1½ inch wide, nerves 6 or 7 pairs covered beneath with long red hairs, back of leaf punctate. Scape short few flowered about 3 inches long hairy unbranched. Calyx lobes free nearly to base linear hairy green nearly as long as corolla lobes. Corolla tube very short, lobes broad rounded oblong explanate subequal pale lilac, about ½ inch across. Stamens 4, filaments very short, anthers broad waxy sub-globose connivent round the pistil. Style longer slender curved white. Capsule cylindric narrow 1 inch long scabrid, straight, on pedicels elongated to ½ inch.

Lankawi, Gunong Chinchang at Kwala Malacca (Curtis).

Found quite dried up in February 1899, and brought alive and flowered in the Botanic Gardens, Penang.

### *11. Orchadocarpa*, n. gen.

Herb or shrublet with opposite unequal leaves. Flowers small blue racemose or cymose, pedicelled. Sepals free to base narrow lanceolate. Corolla tube short, limb 2 lipped unequally. Stamens 2, filaments short exsert sintuate, glabrous, anthers bilobed reniform connivent by their edges. Ovary hairy oblong style short. Stigma capitate. Capsule oblong hairy enclosed in the sepals.

Sp. *O. lilacina*, n.sp.

Stem short to 4 inches long stout woody. Leaves crowded at the top long petioled thin ovate or ovate lanceolate acute, strongly serrate covered with closely felled short hairs, base broad inaequilateral 3 to 7 inches long 1½-3 inches wide, petiole slender 3-6 inches long. Peduncle 3-4 inches long pubescent villous bearing a terminal pubescent umbelliform panicle, or simply racemose. Sepals linear pubescent ⅛ inch long. Corolla pale lilac-blue, tube very short, limb distinctly bilabiate, upper lip smaller, lobes short rounded, lower lip longer

trifid, median lobe longer than the others oblong obtuse, pubescent across. Stamens 2, filaments from the mouth of the corolla tube thick, twisted at the top, anthers large reniform. Ovary oblong pubescent. Style distinct not larger than the calyx. Stigma very small capitate. Capsule short oblong hairy enclosed beaked in the calyx.

Perak (Scortechini 406*a*), Gunong Batu Putih (Wray 302) 298.

*12. Rhynchoglossum*, Bl.

Herbs succulent and nearly glabrous. Leaves opposite thin. Raceme terminal lax flowers pendent. Calyx campanulate toothed or lobed. Corolla tube cylindric narrowed above, limb bilobed, upper lobe very short bifid, lower much longer 3 lobed. Stamens 2 perfect affixed to the middle of the corolla tube, anthers connivent, cells ellipsoid parallel. Staminodes 2, or absent.. Disc cylindric. Ovary ovoid glabrous. Style longer. Stigma dilate. Capsule included in the calyx ellipsoid membranous 2-valved. Seeds narrowly ellipsoid smooth.

*R.obliquum*, Bl. Bijdr. 741.

Succulent herb-20 inches tall. Leaves 1-3 inches long $\frac{1}{2}$-1 inch wide glabrous or nearly so ovate acuminate, petiole $\frac{1}{4}$ inch long or less. Racemes lax about 6 inches long, flowers numerous pale to deep violet. Bracteoles filiform $\frac{1}{12}$-$\frac{1}{6}$ inch long. Calyx tubular $\frac{1}{4}$ inch long enlarged in fruit, lobes triangular or lanceolate. Corolla $\frac{5}{8}$ inch long, lower lip several times longer than the upper one, subtrilobed. Capsule ellipsoid $\frac{1}{3}$ inch.

Clarke, Mon. Phan. p. 161, Fl. Brt. Ind. IV, p. 367 *R. Blumei*, Dec. Prodr. 9, p. 274; *Loxotis intermedia*, Benth. Scroph. Ind. p. 57, Don Gen. Syst. 4, p. 664 *L. obliqua*, R. Br. Benn. Pl. Jav. Rar. p. 102, t. 24; Miq. Fl. Ind. Bat. 2, p. 731, t. 35, fig. 3.

Perak, Larut Hills (Fox), Batang Padang (Wray 1447), at 2000 feet elevation.

Distrib. Tenasserim and Malay islands.

### *13. Epithema*, Bl.

Small rock-herbs, succulent pubescent. Stem simple or branched. Leaves few, alternate or opposite above petioled or sessile, ovate usually cardate. Peduncles long, from the upper axils erect. Bract single ovate or cucullate. Flowers small blue or white in a scorpioid cyme on short pedicels. Calyx campanulate lobes 5 acute. Corolla tube short, limb distinctly 2 lipped, lobes acute or obtuse subequal. Stamens perfect 2 posterior, anterior ones sterile shorter, anthers cohoerent. Disc unilateral or almost surrounding the ovary. Ovary ovoid. Style longer. Stigma subcapitate. Capsule globose enclosed in the enlarged calyx on a thickened and a longer pedicel splitting transversely (a pyxis). Seeds ellipsoid or oblong, spirally reticulate.

Species about 6 Asiatic, all very closely allied, and one African.

*E. saxatile*, Bl. Bijdr., p. 738.

Succulent herb 3-12 inches tall. Stem viscid pubescent, leaves very variable, opposite, ovate cordate denticulate or crenulate. Stigmose or hairy 1½-6 inches long, 1-5 inches across, petiole ¼-1½ inch long. Peduncle 1-2 inches long viscid, cyme ¾ inch across subtended by a broad sessile truncate denticulate bract. Flowers numerous subsessile. Calyx viscid pubescent tubular, split about half way down into 5 narrow lobes, ¼ inch long. Corolla tube as long straight white, three upper lobes oblong obtuse tipped with violet, lower two connate broader subovate denticulate thinner pellucid tipped mauve with darker central spots , mouth of tube inside hairy. Stamens 4 in 2 pairs, filaments incurved, adnate to the mouth of the tube white, anthers 2 oblong connate yellowish. Ovary ovoid enclosed in a fleshy truncate yellow disc. Style stout glabrous. Stigma capitate. Capsule globose pubescent surrounded by the much enlarged ovate acute sepals and borne on the thickened elongate to ⅛ inch pedicel, circumsciss. Seeds very numerous brown elliptic fusiform spirally ribbed.

Dec Prodr. 9, p. 278; Miquel Fl. Ind. Bat. 2, p. 736; 3 Zoll. Verz. Ind. Arch. 1854, p. 55; Clarke, Mon. Phan. 178.

Pahang, Kota Glanggi (Ridley); Selangor, Kuala Lumpur Caves (Ridley, 8217); Perak, Telor Pinang, Ipoh (Ridley), Batu Kurau (Scortechni 1580) (King's Coll. 10,941), Sungei Ryah (Kunstler 983), Goping (King's Coll. 5872); Lankawi Islands (Curtis 2107).

Distrib. Java, Borneo, Sumatra (Karang Natu Peak Forbes 3122) on limestone rocks.

### *14. Monophyllæa*, R. Br.

Succulent herbs with an unbranched stem and one large leaf herbaceous cordate ovate sessile. Peduncles numerous from the leaf base, with racemose or cymose inflorescence. Flowers small white. Calyx deeply 5 cleft, lobes elliptic obtuse. Corolla small white, tube short cylindric, limb distinctly 2 lipped, lobes 5. Stamens 4 perfect, filaments short, anthers cohering in pairs or altogether, disc unilateral or a complete ring. Ovary 1 locular. Style short. Stigma capitate. Capsule membranous inclosed in the enlarged calyx irregularly splitting. Seeds oblong minute reticulate.

Species 7, Malay Peninsula and Islands and Siam.

Leaf glabrous, sepals not spreading in fruit 1. *M. Horsfieldi*
Leaf strigosely hairy, sepals spreading in fruit 2. *M. patens*

*M. Horsfieldi*, R. Br. Benn. Pl. Jav. Rar., p. 121; Ann. Sc. Nat. 2, Vol. XIII, p. 160.

Stem 6 inches to a foot tall. Leaf ovate cordate 6-12 inches long 1-12 inches wide glabrous glaucous beneath. Racemes 2-7 often stout 9 inches long, flowers numerous subsecund, pedicels ¼ inch long glabrous. Sepals glabrous rounded ovate ribbed. Corolla tube short cylindric, upper lip bilobed, lower 3 lobed, lobes rounded, white. Stamens 4 didynamous glabrous, anthers connate. Style short, glabrous, pistil subglobose. Capsule globose enclos-

ed in the enlarged sepals. Seeds oblong brown reticulate very numerous.

Selangor, Kuala Lumpur Caves (Curtis) (Beccari); Perak, Gopeng (King's Coll. 515 and 443).

Distrib. Sumatra, Batu Pantih (Forbes 2660*a*) Java (Lobb) on limestone rocks.

*M. patens*, n.sp.

Stem 1-4 inches long viscid hairy. Leaf ovate cordate to ovate lanceolate strigose hairy 6 inches long 4-6 inches across. Racemes slender 4-20, pubescent 4-5 inches long. Flowers in pairs, pedicels slender pubescent ¼ inch long in fruit. Sepals lanceolate hairy spreading in a stellate manner in fruit, ribbed. Corolla tube short lobes white. Stamens 4 glabrous didynamous. Pistil ovoid. Style short thick glabrous. Capsule globose glabrous. Seeds numerous black tessellated.

Selangor, Kuala Lumpur Caves (Ridley 8222) (King's Coll. 7052); Perak, Kinta, (Curtis 3136), Sungei Siput (3135), Batu Kurau (Scortechini 1574 and 1579) Gopeng (Kunstler 449).

Endemic. On limestone rocks.

*M. glabra*, n.sp.

Stem succulent 6 inches to a foot tall. Leaf ovate cordate obtuse glabrous glaucous beneath 2½-6 inches long 2 to 6 inches wide. Racemes slender glabrous 4 to 10, 2-8 inches long lax. Flowers numerous in pairs, pedicels slender ¼ inch long spreading deflexed. Sepals ⅛inch long in fruit lanceolate acute glabrous not spreading. Corolla brown ond white. Capsule, enclosed in the sepals cylindric oblong.

Siam, Kasum (Curtis 3219).

Endemic.

### *15. Stauranthera*, Benth.

Herbs succulent pubescent, with alternate leaves, the opposite ones reduced, falcate elliptic acuminate inaequilateral.

Cymes peduncled lax. Bracts small. Flowers medium sized showy. Calyx campanulate lobes five. Corolla campanulate rounded tube short, shortly spurred or gibbous, limb two lipped, lobes rounded nearly equal. Stamens 4 perfect, anthers connate bilocular, bases diverging. Ovary subglobose or ovoid, no disc. Style short. Capsule depressed globose irregularly split. Seeds minute obovoid reticulate.

Species 3. Assam and Malay islands.

Flowers large, base of corolla spurred 1. *S. grandiflora*
Flowers small base of corolla not spurred 2. *S. umbrosa*

*S. grandifolia*, Benth., Scroph. Ind. p. 57.

Succulent herb with a fleshy stem about 6 inches tall. Leave 6 inches long by 4 wide or less oblong obtuse crenulate deep green above bullate glabrous inaequilateral pubescent on both sides petiole 1 inch long. Cyme short pubescent 3 inches long with a few, 9 large flowers. Bracts short ovate, flowers 1¼ inch across. Calyx lobes lanceolate ovate pubescent. Corolla tube short and broad with a short spur at the base, lobes short broad rounded, violet with a central yellow bar reaching to the spur. Stamens subequal 4, filaments slender, anthers connate. Ovary ovoid, style shorter than the stamens. Stigma capitate. Capsule.

Clarke De C. Prodr. l.c. 190; Dietr. Syn. pl. 3, 582, R. Br. Benn. Pl. Jav. Rar. p. 121; Hook. Bot. Mag., t. 5409; Miq. Fl. Ind. Bat. 2, p. 735; Clarke, Comm. and Cyrt. Beng. t. 89, bis.

Penang (Wallich 6395) rocks near Balik Pulau (Curtis); Perak, Larut (King's Coll. 2248).

Distrib. Burmah. Rare on rocks.

*S. umbrosa*, Clarke, Comm. and Cyrt. Beng. 189; Dec. Prodr. 189.

Stem 3 to 6 inches tall. Leaves ovate oblong falcate inaequilateral strigosely hairy especially beneath 6-8 inches long 2-4 wide. Cymes spreading few to 10

flowered peduncles and pedicels hairy. Calyx shortly five-lobed, cup-shaped, lobes triangular, ¼ inch long in flower, larger and spreading in fruit. Corolla ½ inch long, white with a violet spot in the centre. Ovary unilocular. Capsule circumciss near the base.

*Cyananthus umbrosa*, Griff. Notul. 4, pl. 154; Ic. Pl. Asiat. 437.

Johor, Gunong Panti (Ridley 4166); Pahang, Tahan Woods (Ridley 2183); Selangor Woods at the Kuala Lumpur Caves (Ridley 8224); Perak, Telok Pinang near Ipoh (Ridley 9773), Kinta (King's Coll. 7144).

Distrib. Assam. In damp rocky woods on the ground.

### *16. Rhynchotecum*, Bl.

Shrubs little branched, young parts red-woolly. Leaves opposite or alternate. Cymes axillary decompound. Flowers small numerous. Calyx 5 cleft nearly to the base, lobes narrow. Corolla small campanulate, limb two-lipped, lobes 5 ovate or oblong subequal. Stamens 4 perfect affixed to near the corolla base, filaments short curved, anther cells 2 subparallel. Ovary sessile ovoid, disc very small annular or absent. Style much longer than ovary. Stigma subcapitate. Berry small globose with persistent style, pericarp pulpy. Seeds very small smooth.

Species 9 Indo-Malayan.

*R. parviflorum*, Bl. Bijdr. p. 775.

A little-branched shrub about 3 feet tall, leafy above upper parts ferruginous hairy. Leaves opposite lanceolate acute cuneate at the base serrate, 8 inches long, 3½ inches wide, dark green glabrous above except the midrib, covered with red wool beneath thickest on the nerves, nerves 13 pairs petiole 1 inch long. Cymes numerous short from the lower part of the stem laxly branched, red-woolly. Flowers very small yellowish white. Sepals nearly free to the base linear lanceolate acute woolly, ⅛ inch long. Corolla little longer campanulate lobes oblong

obtuse white. Stamens 4 very short, filaments short and thick. Style longer than the ovary. Capsule ovoid-globose hairy shorter than the sepals.

Clarke, Prodr. p. 195; Miq. Fl. Ind. Bat. 2, 750. *Isanthera parviflora*, Ridl., Trans. Linn. Soc., III, 331.

Pahang, Kuala Tahan (Ridley 2171); Penang (Wallich Pulau Betong and Penara Bukit) (Curtis 3035); Perak, Larut Hills (Ridley) (King's Coll. 2237) (Scortechini 1222).

In woods, terrestrial.

Distrib. Java, Sumatra.

### *17. Cyrtandromoea*, Zoll.

Shrubs with square stems, leafy above. Leaves opposite subequal herbaceous ovate elliptic or lanceolate serrate petioled. Flowers 1 to many in axillary or basal cymes. Bracts 2 in the middle of the pedicel. Calyx tubular shortly 5 toothed or lobed, enlarged in fruit, usually red. Corolla large white tubular thin glabrous, tube dilated at apex lobes rounded subequal. Stamens 4 perfect in 2 pairs subsimilar, filaments linear anthers ovoid small. Pistil longer than stamens. Stigma cupshaped. Capsule globose or oblong enclosed in the enlarged calyx, opening irregularly. Walls membranous. Seed numerous sinuate oblong obtuse ribbed reticulate.

Species ten Malayan.

| | |
|---|---|
| Flowers solitary axillary | 1. *C. acuminata* |
| Flowers cymose axillary. Leaves ovate | 2. *C. megaphylla* |
| Flowers cymose at the base of a woody stem. Leaves acuminate at base | 3. *C. grandis* |

*1. C. acuminata*, Benth and Hook. fil., Gen. Pl. 2, p. 1020.

A shrubby plant 3 or 4 feet long, stem rather weak, hollow, young parts pubescent. Leaves lanceolate or ovate narrowed into the petiole acute, serrate, strigose

above pubescent especially on the nerves beneath, 4-6 inches long 2-3 inches wide petiole 1 inch long. Flowers solitary axillary on short $\frac{1}{8}$ inch long or lanceolate slender hispid peduncles with 2 very small linear tracts in the middle. Calyx tubular $\frac{1}{2}$ inch long glabrous with short teeth dull red. Corolla nearly straight 1 inch long tube thick lobes rounded white. Capsule oblong 4 angled $\frac{1}{4}$ inch long, seeds minute deeply reticulate.

Clarke, Mon. Phan., p. 185; *Busea subsessilis*, Miq. Fl. Ind. Bat. 2, p. 735.

Selangor, Ginting Bidai (Ridley); Negri Sembilan, Bukit Sulu (Cantley); Perak, Larut Hills (Ridley 2917) (Scortechini 83 and 329*a*) (King's Coll. 5342 and 2139); Penang (Porter in Wallich's Coll. 808) (Maingay 1232/2) (King) Tonoh (Machado). Tringanu, Bundi (Rostado).

Distrib. Sumatra.

Native Name:—Supujit Jantan, Supujit Bukit and Sumpuh Munahon. The leaves are used for in baths in jungle fever.

In forests on banks at about 1000 feet and upwards.

2. *C. megaphylla*, Hemsl., Ic. Pl. 1555.

Herb about three feet tall. Stem bluntly 4 angled pittey in centre pubescent. Leaves opposite subequal, herbaceous ovate acutely acuminate coarsely serrate, base rounded or subcordate 6-10 inches long 3 inches wide pubescent, petiole 3-5 inches long. Cymes from a little above the axils lax many flowered. Calyx tubular pubescent shortly 5 toothed half an inch long, inflated in fruit. Corolla about 2 inches long white obliquely infundibuliform, lobes rounded subequal, ovary perfectly bilocular.

Perak, Larut Hills at 2100 feet alt. (Wray) (Scortechini), Gunong Batu Putih (King's Coll. 8155); Selangor, Ginting Peras (Ridley 7602).

Endemic in forests.

3. *C. grandis*, n.sp.

A large shrub several feet tall base of stem woody half an inch through, glabrous. Leaves opposite equal herbaceous lanceolate acuminate glabrous narrowed acuminate at the base, margins dentate, 12 inches long 4 inches wide, nerves elevated 10 pairs, petiole 1-1¼ inch long. Cymes large lax borne on the base of the stem, and on the upper part below the leaves, many flowered 2½ to 6 inches long pubescent. Pedicels ¼ inch long. Calyx tubular pubescent with linear lobes, red half an inch long. Corolla white 1 inch long tube straight thick lobes rounded. Fruit globose ½ inch long enclosed in the enlarged calyx and seed minute black oblong ribbed and reticulate.

Selangor, Kuala Lumpur (Curtis) (Ridley 10498); 15th mile Pahang Track (Ridley 8552), Bukit Hitam (7576); Perak, Ulu Bubong (King's Coll. 10150), Gunong Batu Putih (King's Coll. 8155).

Endemic. Common on banks in forests but local. A very fine species.

### *18. Cyrtandra.*

Half shrubby plants, terrestrial or rarely epiphytic, stems often branched usually tall. Leaves opposite subequal or one smaller. Bracts large or small free or connate. Bracteoles ovate or narrowed or absent. Cymes axillary on long or short peduncles, many flowered. Calyx tubular 2 to 6 lobed usually 5 lobed, lobes lanceolate. Corolla tube short, usually pubescent infundibular straight, lobes 5 subequal or more or less distinctly 2 lipped, usually white spotted or marked with yellow brown, or red. Stamens 2 perfect shortly exsert or included affixed to the corolla, anthers bilocular connivent free or coherent. Staminodes small 2-3. Disc annular or unilateral. Ovary ovoid or oblong. Style long filiform. Stigma sub-bilobed. Berry sausage-shaped or ovoid, firmly fleshy, usually beaked with the persistent style. Seeds numerous minute ellipsoid smooth or obscurely reticulate.

Species about 170. Malay Peninsula and islands to Polynesia.

| | |
|---|---|
| Bracts free. Leaves alternate | 1. *C. dispar* |
| Leaves opposite one much reduced | |
| Margins entire | |
| Nerves conspicuous | 2. *C. suffruticosa* |
| Nerves obsolete | 3. *C. falcata* |
| Leaves opposite subequal | |
| Ovovate serrulate | 4. *C. pilosa* |
| Oblanceolate crenulate | 5. *C. lanceolata* |
| Ovate or lanceolate | 6. *C. pendula* |
| Bracts connate into a large white cup | 7. *C. cupulata* |

*1. C. dispar*, De C., Prodr. 9, p. 282.

Shrub with a stout pale reticulate stem fistulous, obscurely 4 angled. Leaves alternate obovate oblanceolate, petioled strongly toothed especially at the apex inaequilateral glabrous above, red pubescent beneath 12 inches long 4 inches wide petiole an inch long. Flowers small very numerous in axillary cymes, pedicels ¼ inch hispid. Calyx persistent cup-shaped with 5 lanceolate acuminate hairy lobes. Corolla white ½ inch long tube dilated upwards hairy outside lobes short obtuse rounded. Stamens shorter than the tube, abortive ones very much reduced. Pistil hairy. Fruit ¼ inch long oblong ellipsoid hairy.

Miq. Fl. Ind. Bat. 2, p. 742; Clarke, Dec. Prodr. p. 203, Tab. XXIII.

Penang, Government Hill (Curtis 1204) (Wallich 807) (partim) (Maingay 1232); Perak, Bujong Malacca (Ridley 9703), Larut Hills (Ridley and Fox, Scortechini 367 and 1231, Wray 2196) (King's Coll. 2052, 5731 and 3891).

Distrib. Sumatra.

2. *C. suffruticosa*, Ridl., Trans. Linn. Soc., p. 331.

A large shrub 4 feet tall with hollow 4 angled pale stems ¼ inch thick. Leaves opposite, the alternate one often very much smaller lanceolate abruptly acuminate subfalcate inaequilateral, edges entire, nerves conspicuous about 12 pairs, glabrous when adult, young leaves and petioles red pubescent, 7 to 9 inches long 2½-3 inches wide, petiole ½-¾ inch long. Peduncles short and thick axillary. Bracts free ovate acute pubescent, 1 inch long ½ inch across. Flowers about 6 in a head nearly sessile. Calyx deciduous sepals linear. Corolla glabrous over an inch long, base cylindric dilated upwards, lobes rounded obtuse white with brown streaks in the throat, anthers large elliptic. Style pubescent. Fruit ¾ inch long sausage-shaped.

Johor, Tengarah (Fielding,) Pulau Tiuman (Ridley) on rocks; Perak (Scortechini 142 *b*), Gopeng (King's Coll. 4720), Kota Bahru (King's Coll. 569), Tupai, Larut (Wray 2845.)

Endemic. Generally growing on rocks put (King's Coll. 4720) from the top of a high tree. Wray describes the flowers as "white marked in the throat with dark claret. Bracts green without, claret within, fruit light green finely spotted paler."

3. *C. falcata*, n.sp.

Epiphytic about 2 feet tall, stem quadrangular fistulose, pale. Leaves lanceolate acuminate falcate alternate, often with small opposite ones, glabrous when adult, narrowed at the base into the petiole, nerves about 10 pairs, 7 or 8 inches long 1½ inch wide, petiole 1 inch long pubescent. Cymes axillary shortly ½ inch peduncled. Bracts broadly ovate acute pubescent ½ inch long. Flowers few shortly pedicelled. Fruit fusiform ½ inch long.

Selangor, woods round the Kuala Lumpur Caves (Ridley 8219); Perak (Wray 2845, Scortechini 142*b*). Endemic rare.

Allied to *C. oblongifolia*, Hook. fil., and *C. suffruticosa*, Ridl., but the leaves are much narrower than those of the latter, and thinner with conspicuous nerves, than those of the former.

4. *C. pilosa*, Bl. Bijdr. p. 770.

Shrub with stout 4-angled hollow stems as much as ½ inch through, 3 feet tall upper parts pubescent. Leaves opposite obovate narrowed into a winged petiole, margins serrate above more or less covered with pale hairs from a swollen base, in old leaves often glabrescent, beneath covered with red hairs on the nerves, nerves prominent 10-12 pairs 8-18 inches long 3-4 inches wide. Bracts ovate or lanceolate acuminate hairy 1 inch long. Cymes small nearly sessile axillary. Calyx tubular hairy ½ inch long bifid. Corolla white with one inch long silky hairy, tube infundibuliform stout, upper lobes oblong obtuse, lower two connate shortly bifid obtuse punctate above. Stamens little longer than the tube filament glabrous abortive, stamens short. Fruit ovoid conic acute brown reticulate-tessellate ½-¾ inch long.

Don. Gen. Syst. 4, p. 661, De C. Prodr. 9, p. 282, Miq. Fl. Ind. Bat. 2, p. 742, Clarke, Mon. Phan. 231, *C. decurrens*, De Vriese, Pl. Ind. Bat. Reinwdt. p. 14, Miq. l.c. p. 746, Clarke l.c. 233.

Johor, Gunong Panti (Ridley), Bukit Tanah Abang (Kelsall); Negri Sembilan, Bukit Tanga (Napier), Bukit Sulu (Cantley); Selangor, Bukit Kutu (Ridley 7574), Bukit Hitam, Pahang Track 8560 and 8554); Perak, Larut Hills (Ridley 2915) (Curtis 2897) (Scortechini 354 and 270*a*). King's Coll. 5588); Penang (Wallich 807), Penara Bukit. On banks in forests.

Distrib. Tenasserim to New Guinea.

Native name "Poko Gugunjah Bukit." In rocky woods up to about 2000 feet altitude I am unable to separate specifically the forms, described respectively under the names of *C. pilosa*, Bl., and *C. decurrens*, De Vr., at least as far as applies to the variety *Wallichii* of the latter.

The main distinction seems to be in the amount of hairiness of the leaves, in which point the plant seems very variable. The plant distributed as from "Singapore Lobb" was doubtless from Penang, as it has never since been seen in Singapore and is hardly likely to have occurred here, as it is a hill plant.

5. *C. lanceolata*, Ridl., Journ. Linn. Soc., XXXII, 527.

Stem about a foot tall, the base bare, quadrangular, upper part pubescent. Leaves oblanceolate acute, narrowed at the base crenulate almost entirely glabrous 12 inches long 4 inches wide, petiole. Cymes at the base of the stem below the leaves very shortly peduncled lax many-flowered, pedicels ¾ inch long hispid. Bracts lanceolate small hispid. Calyx 1½ inch long tubular hispid, lobes 3 linear acuminate. Corolla 1½ inch long dilate above pubescent, white throat yellow, anthers long narrowed above. Style 1 inch long pubescent. Stigma bilobed lobes oblong linear.

Johor, Gunong Panti (Ridley). Endemic, rare.

6. *C. pendula*, Bl., Bijdr. p. 768.

Stem one or two feet tall. Leaves alternate ovate cordate or lanceolate entire or crenate dark green and glabrous above, often barred with white and covered with reddish tomentum beneath, 8 inches long 4-6 inches wide, petiole 3-6 inches long, opposite leaf in each internode reduced to a subulate process. Capitulum of 20 flowers on peduncles 4 inches long decurved appressed hairy. Bracts lanceolate acuminate hairy. Flowers shortly pedicelled. Calyx tube half an inch long, thin shortly bifid. Corolla tube 1½ inch long, base narrow curved ventricose upwards, cream-colored or pale yellow, hairy upper lip of two rounded lobes, lower of three broader oblong rounded ones, all creamy white or pale yellow with purple spots in the mouth and tube. Stamens 2 glabrous, filaments purplish sinuate, anthers oblong connivent. Style stout white, stigma transversely oblong. Fruit sausage shaped ½ inch long.

G. Don. Syst. Prodr. p. 660, De C. Prodr. 9, p. 281, Miq. Fl. Ind. Bat. 2, p. 739, Hook. Ic. Pl. t. 736, Clarke, Dec. Prodr. 242.

Singapore, Bukit Timah (Ridley 2703), King; Johor, Gunong Panti, Pulau Tioman; Pahang, Kuala Tembeling (Ridley); Malacca (Maingay); Selangor, Kuala Lumpur, Bukit Hitam (Ridley); Perak, Larut Hills (Curtis 2036) Scortechini 142*b* and 254*b*) (Wray 2845), Ulu Bera (King's Coll. 10810); Sungei Ujong, Bukit Sulu (Cantley).

Distrib. Java and Sumatra.

In rocky woods abundant. Native name "Poko Asam Batu." The leaves are eaten in curries.

7. *C. cupulata*, Ridl., Journ. Linn. Soc., XXXII, p. 527.

A shrubby plant 2 or 3 feet tall, stem terete or more or less four-angled above covered with red hair. Leaves opposite equal, very variable, oblanceolate with an acuminate base serrately toothed scantily hairy above, more hairy beneath, petiole sometimes winged to the base villous an inch long, blade 12 inches long 4 inches wide. Peduncles half an inch long axillary in pairs villous. Bracts connate into a white hairy cup an inch long. Bracteoles short lanceolate acute white. Flowers numerous opening singly little longer than the bract. Corolla 1 inch long curved infundibuliform, 2 lipped pubescent white yellow and brown in the mouth, lobes 5 subequal ovate obtuse. Stamens included 2, pistil short, ovary oblong with a terminal tuft of hair. Style short curved. Stigma clavate bilobed. Fruit $\frac{1}{2}$ inch long fusiform.

Malacca, lower slopes of Mt. Ophir (Ridley 7575) Sungei Buluh (10550); Pahang, Tahan Woods (Ridley 2150); Perak, Tapa (Wray 1389 and 191), Ulu Bubong (King's Coll. 10250), Larut Hills (Scortechini 366), Chanderiang (King's Coll. 5733).

Endemic in wet woods.

# A Third Contribution to the Knowledge of the Hymenoptera of Sarawak.

By. P. Cameron.

This paper is in continuation of one on the Hymenoptera of Sarawak based on material collected by Mr. Robert Shelford, M. A., published in the journal of the Straits Branch Royal Asiatic Society in 1903 and another in 1903.

## Siricidæ.

*Stirocorsia cariniceps*, sp. nov.

Black, the hind trochanters and femora red, the hind tibiæ thickly covered with white pubescence which gives it a white appearance; the fore wing fuscous-violaceous; a hyaline cloud extends from the base of the cubitus to near the base of the radius and extending to the oppisite side of the wings, the lanceolate cell being also hyaline; the basal half of the hind wings hyaline, the apical lightly fuscous-violaceous; the stigma and nervures black. Temples, pleuræ, sternum, apex of abdomen and legs covered with white pubescence. ♀.

Length 13-14 mm.

Kuching. November.

On the sides of the vertex are 5 projections, rounded in front and arranged one above the other like the steps of a stair; the upper part of the front closely, strongly rugosely punctured, the lower is more irregularly and coarsely reticulated, with a smooth space, longer than broad, in the centre above; in the centre below is a somewhat triangular depression—the broad part above—and having, at the top, a large deep round fovea. Front coarsely, irregularly punctured-reticulated, more closely above than below, where the reticulations are more widely separated and irregular; in the centre near the apex is a large,

longer than broad, smooth space. Frontal keels distinct, the apical curved and projecting, more clearly separated than the others, the upper transverse and less developed than the lateral. Inner orbits obliquely sloped, coarsely rugosely punctured. The eyes behind are bordered by a keel which extends from the top to half way down the malar space, and is clearly separated from the eyes. Pronotum closely punctured; the mesomore strongly and irregularly, but not so closely and having a wide smooth line in the centre of the basal half; the scutellum is less closely and less strongly punctured, and with a smooth, shining, slightly violaceous space in the centre. It is separated from the metanotum by a deep, curved, crenulated furrow. Post-scutellar region closely rugose; the median segment more closely and less strongly punctured and having a smooth raised curved line at its base. The basal 4 segments of the abdomen are closely punctured, the punctuation becoming gradually weaker; at the base is a deep crenulated furrow; the last is more closely and strongly punctured and with its apex depressed and smooth, except in the centre, which projects. The apices of all the segments are smooth; the ventral closely and strongly punctured.

The pro- and mesopleuræ are closely punctured, the latter less strongly at the apex, the meta- coarsely aciculated, shining. The hinder tibiæ have 4 teeth above; below and clearly separated from them, are 4 larger oblique ones, followed by a smaller tooth. The 1st disevidal cellule is of equal width throughout. The frontal area, above, is not half the length of the bottom. Clypeus and the apex of mandibles thickly covered with golden hair. Second abdominal segment not quite so long as the following 2 united. The median segment laterally is bounded by a keel; above this is another longitudinal keel.

*Stirocorsia* belongs to the Oryssinini.

## CYNIPIDÆ.

*Mesocynips insignis*, Cam.

Mr. Shelford has sent the undescribed ♂ of this species from Matang. It has the antennæ filiform, longer than the

body, 15-jointed, the scape luteous, the flagellum black, bare. The last abdominal segment is as long as the preceding; it is closely and distinctly, the penultimate sparsely, punctured. The basal joint of the hinder tarsi is longer than the 4 following joints united. The apical 2 abdominal segments are marked with black.

CHALCIDIDÆ.

*Antrocephalus maculipennis*, sp. nov.

Black; the wings hyaline a cloud at the stigma extending to the middle, beyond which is a fainter, smaller cloud; between this and the apex of the wing is a wider, more irregular cloud, narrowed above; the apex of clypeus with a broad, rounded incision; the lateral lobes broad and rounded; head, thorax, legs and apex of abdomen covered with silvery pubescence. ♀.

Length 6 mm.

Hab. Kuching. December.

Head closely and strongly punctured; the inner orbits margined, the space between the keel and the eyes irregularly, transversely striated, the lower half of the front irregularly longitudinally striated, the striæ intermixed with the punctures. Prothorax rugosely punctured; the sides keeled to near the centre above. Mesonotum closely rugosely punctured at the base, the rest and the scutellum closely covered with round punctures. Metanotum coarsely reticulated; at the base are 2 irregular oval foveæ, followed, at their apex, by a larger longer one, sharply obliquely narrowed at the base, narrowed and rounded at the apex; there are no lateral projections. Propleuræ above coarsely punctured, the middle irregularly longitudinally striated, below smooth. The central depression of the mesopleuræ has the upper two-thirds closely, stoutly, longitudinally striated, below smooth, the rest rugose; metapleuræ rugosely reticulated and punctured. Abdomen slightly shorter than the thorax.

*Antrocephalus rufipes*, sp. nov.

Black, the legs red, their coxæ and trochanters black and thickly covered with white pubescence; the wings with a small

cloud at the stigma, the nervures black; the basal 2 joints of flagellum red. ♀.

Length 5 mm.

Hab. Trusan. November.

Cheeks, malar space and outer orbits thickly covered with silvery hair; the inner orbits clearly margined; frontal depression closely, minutely transversely striated, with a smooth, shining, transverse band below the ocelli. Occiput closely reticulated. Pronotum closely punctured; the basal slope keeled round the edges, except in the centre above. Mesonotum and scutellum similarly punctured; the furrows distinct; the 2 scutellar teeth, wider than long and rounded at the apex; the part beneath with a closely striated band. Median segment with 2, slightly converging at the base, keels down the centre and an oblique one on the sides. Pleuræ rugosely, closely punctured; the centre of the mesopleuræ closely striated, the striated part bounded at the base by a stout, smooth keel which is roundly curved above and dilated in the middle; the apex of the mesopleuræ is rugose above, smooth, shining, and depressed below. Metapleuræ coarsely rugose; below both are thickly covered with silvery pubescence. The upper two-thirds of the hind femora is roundly curved more dilated above than below; the lower part is clearly separated from the upper and rounded. Tegulæ rufous. Middle abdominal segments thickly covered with silvery hair.

*Megacolus fulvipennis*, sp. nov.

Black, the 1st abdominal segment and the sides ferruginous, the tarsi red; the femora with 5 large teeth of which the apical 2 are more widely separated than the others; apex of clypeus transverse; wings fulvo-hyaline, the nervures blackish. ♂.

Length 8 mm.

Hab. Kuching. September.

Head rugosely reticulated; the frontal depression transversely striated and with a keel down the middle. Thorax closely, rugosely punctured. Scutellar projection large, with 3 or 4 stout irregular keels. Metanotum stoutly, irregularly reticulated; the

sides with a large tooth at the base and a smaller, more rounded, one at the apex. Mesopleural depression punctured throughout. Legs thickly covered with white pubescence, as are also the breast and metapleuræ.

*Megacolus rufitarsis*, sp. nov.

Black, the abdomen and tarsi rufous, the hind femora with 7 short teeth; a longish stout tooth or spire between the antennæ; the apex of scutellum projecting in the middle, its apex almost transverse. ♂

Length 8 mm.

Hab. Kuching. July.

Head rugosely punctured, the punctures running into reticulations; the frontal depression above stoutly transversely striated, with a stouter longitudinal keel down the centre; the lower part with curved furrows; the occiput irregularly longitudinally striated. Metanotum with large, irregular reticulations. Propleuræ smooth; near the middle is a wide, oblique furrow, bordered below by a rounded keel; mesopleuræ covered with large, round deep punctures; the central depression wide, slightly narrowed below, smooth, obscurely striated above. The 3 basal teeth of the hind femora are narrower and closer together than the others.

In colouration this species is identical with *M. striolatus*, from which it may readily be known by the greater number of teeth on the femora, by the transverse apex of scutellum and by the frontal spine.

*Megacolus striolatus*, sp. nov.

Black; the 1st abdominal segment and the tarsi testaceous, the wings hyaline, narrowly streaked with fulvous, the nervures and costa black; hind femora with 5 teeth, the basal 3 short and rounded; the apical 2 sharper and longer. ♀.

Length 8-9; terebra 3-4 mm.

Hab. Kuching July.

Front and vertex coarsely rugosely punctured, almost reticulated; frontal depression transversely striated; face and clypeus covered with large, round, clearly separated punctures; above the centre of the clypeus is a deep depression or pit. Occiput obliquely depressed, its centre smooth; the sides punctured above, below irregularly striated. Pronotum closely irregularly punctured; the meso- more closely punctured, its centre at the base irregularly, transversely striated; scutellum coarsely, irregularly reticulated; its apex projecting, rounded, with a slight, wide incision in the centre; it is depressed, with some slight keels at the base. Metanotum coarsely, irregularly reticulated; the basal reticulations irregular and broken; the basal tooth, large rounded and narrowed at the apex, its length as long as the width at the base. Propleuræ irregularly punctured with a smooth space in the centre above; the meso- and metapleuræ with large, deep punctures; the oblique central depression on the former smooth at top and bottom, striated in the centre. The 4 front knees are testaceous, the basal 3 short teeth on the hind femora are widely separated; the 4th tooth is long and becomes gradually, obliquely depressed to the 5th which is shorter and sharper and has a short tubercle at its apex.

EVANIIDÆ.

*Pristaulacus crythrocephalus*, sp. nov.

Black, the scape of the antennæ, head, pro- and mesothorax, red; the fore legs of a paler red colour. Wings fuscous-violaceous, paler at the apex, the stigma dark testaceous, black at the base. ♀.

Length 20 mm. terebra 20 mm.

Hab. Kuching.

Head smooth and shining, covered with a pale golden down, which is longest on the clypeus. Apex of clypeus depressed in the middle and with a stout keel on the lower edge; the sides broadly rounded. Mandibles large, longer than the clypeus from top to the bottom of the apex; there are 3 large teeth;

the apical larger than the basal, two. Mesonotum coarsely, rugosely punctured and irregularly reticulated. Scutellum with 4 irregular, curved transverse keels; the depression at its apex and at the base of the metanotum stoutly, closely striated. Median segment irregularly, strongly reticulated. Pleuræ, except at the base of the pro-, closely irregularly reticulated. Antennæ 14-jointed; the scape not quite twice the length of the 2nd; the 2 together are slightly longer than the 3rd, which is distinctly shorter than the 4th. Temples wide. Hinder ocelli separated from each other by the same distance they are from eyes. Base of middle lobe of mesonotum slightly roundly incised in the middle. First recurrent nervure interstitial with the cubital, dilated at its junction with it; the 2nd received shortly beyond the middle of the cellule; the 3rd abscissa of the radius is as long as the other two united. Claws with 4 teeth, the 2 central being longer and sharper than the others.

The ♂ is similarly coloured, has the vertex obliquely raised from the front and has the sides bounded by a longitudinal keel.

*Gasteruption rufomaculatum*, sp. nov.

Black, the mesopleuræ and mesosternum rufous; as are also the front legs and the underside of the middle coxæ, there is a broad white band near the base of the hind tibiæ; wings hyaline, the stigma fuscous, the nervures darker. ♀.

Length 13; terebra 6 mm.

Hab. Kuching.

Front and vertex shining, smooth, almost bare; the face and clypeus and outer orbits thickly covered with silvery pubescence; the hinder occelli are separated from each other by a slightly greater distance than they are from the eyes. The clypeus above, in the middle, is separated from the face by a distinct curved furrow. Mandibles and trophi dark rufous. Middle lobe of mesonotum closely and strongly transversely striated; the sides of the lateral lobes are more finely striated; the middle at the apex much more widely and more strongly longitudinally striated. Scutellum obscurely transversely striate. Median segment rather strongly transversely striated,

the sides less strongly and more irregularly than the metanotum. Centre of propleuræ broadly and strongly striated; the meso- obscurely striated, more distinctly below than above, almost reticulated.

Malar space small, as long as the 2nd antennal joint; the temple large, fully longer than the eyes above; collar short; the 3rd and 4th joints of the antennæ are equal in length and clearly longer than the scape. Parapsidal furrows deep, crenulated; and there is a longitudinal furrow on the apical half of the lateral lobes. Middle tarsi fuscous; the tibiæ darker, paler at the base. Ventral segments of abdomen dark rufous; the apical third of the sheaths of the ovipositor pale. Hind coxæ brownish, transversely straited above.

Belongs to *Gasteruption* S. Str. the 2nd discoidal cellule being divided.

*Evania rubra*, sp. nov.

Rufous, the abdomen black, the apex of petiole white, the rest of it fuscous-black, darker above than on the sides; legs coloured like the body, but paler in tint, the apical third of the hinder femora, and the hinder tibiæ black; the basal third of the tibiæ white; the hinder tarsi fuscous; wings hyaline, the nervures blackish. ♂.

Length 6 mm.

Third joint of antennæ slighter longer than the basal two united and slightly longer than the fourth. Head smooth shining and covered with a pale down. Temples well developed, as long as the malar space; the occiput slightly roundly incised. Mandibular teeth black. Pro- and mesothorax smooth; the lower part of the mesopleuræ with round, shallow, clearly separated punctures; median segment reticulated; the base of the metanotum with a curved, smooth, clearly separated area; the pleuræ at the base in the middle smooth. Metatarsus as long as the 2nd and 3rd joints united; the long spur of the calcaria three-fourths of its length. The cubitus originates far behind the stigma, the 1st cubital cell being thus

much longer on the lower than on the upper side; the transverse median nervure is received distinctly beyond the transverse basal; the cubitus is very faint, almost obliterated beyond the transverse cubital.

This species has the cubitus originating far back behind the stigma as in *Zeuxevania*, but in that group the 1st cubital and the discoidal cells are not separated as they are in my species and in *Evania*.

BRACONIDÆ.

*Chaolta ruficeps*, sp. nov.

Black, the head, antennal scape, thorax and 4 front legs rufous; wings dark fuscous-violaceous, with black stigma and nervures; sheath of ovipositor stout, black, covered with long, stiff hair. ♀.

Length 17; terebra 19 mm.

Hab. Buatal. April.

Scape of antennæ smooth, not excavated, or with the sides keeled; its apex below with a stout keel ending in a short broad tooth. Plate below the antennæ large, rounded and narrowed towards the apex; its keel its stout, reaches close to the middle and originates at the base of the antennæ, its apical half being higher than the basal and dilated in the middle; the face below it and the sides above are irregularly punctured and striated. Oral depression with stout, oblique sides above. Temples longer than the eyes. Median segment infuscated in the middle; its sides closely punctured. The sides of petiole closely, distinctly longitudinally striated; the centre more irregularly striated, the striæ running into reticulations; the 2nd and 3rd abdominal segments are closely, strongly longitudinally striated, the striæ stronger in the middle and at the base, the area being similarly striated; the 4th segment is closely, rugose, almost reticulated; the others smooth; the furrows wide and shallow, striated. Wings long; 2nd abscissa of radius about one, fourth longer than the 3rd.

The abdomen is not dilated in the middle and is twice the length of the thorax.

*Chaolta lutea*, sp. nov.

Luteous, the flagellum of antennæ black; the wings fuscous, behind the transverse median nervure, yellowish hyaline; the stigma black. ♀.

Length 10; terebra 8-9 mm.

Hab. Kuching. April.

Head smooth, shining; in the centre of the face is a depression about twice wider than long and with the sides rounded; oral depression small; temples wide, longer than the eyes. Apex of mandibles black. Apex of scape of antennæ below excavated slightly, the depression stoutly keeled, the keel produced at the apex into a broad tooth; the antennal tubercles stout. Facial plate wider than long, becoming gradually narrowed towards the apex and without a plate at the base. Thorax smooth and shining; flat above; the metanotum with a thin keel down the centre. The depressed sides of the petiole are distinctly longitudinally striated, the raised central part rugosely punctured and striated; the 2nd and 3rd segments are closely, longitudinally striated; the area on the 2nd segment is about twice longer than broad, its sides margined, its apex rounded and half the width of the base; it is more finely longitudinally striated; the 2nd to 4th segments are closely rugose; and have distinct oblique lateral depressions; the suturiform articulation crenulated.

Front depressed, deeply furrowed in the centre; the 3rd joint of the antennæ is slightly, but distinctly longer than the 4th abdomen oval, broader than the thorax and shorter than the head and thorax united. Legs stout, densley covered with pale hair; stigma large, broad; the recurrent nervure is received shortly before the 1st transverse cubital; 2nd abscissa of radius as long as the 3rd of the cubitus and about one-fourth shorter than the 3rd.

This species differs from *Chaolta* proper in the facial plate not having a keel in its centre, in the abdomen being shorter and broader and in the 2nd abscissa of the radius being shorter than the 3rd. In both species the mesonotum is quite flat; in *C. lutea* the scutellum is not raised above the level of

the mesonotum; in *C. ruficeps* it is slightly raised; the parapsidal furrows are absent. *C. lutea* may belong to *Platybracon*, Szép.

*Lissobracon*, gen. nov.

Head cubital; temples broad; occiput and cheeks not margined. Apex of clypeus obliquely depressed, rounded. Antennæ stout. Three cubital cellules. Radial cellule long, extending to the apex of the wing. Transverse median nervure received beyond the transverse basal. Second discoidal cellule closed. Anal nervure not interstitial. Hinder wings as in *Bracon*, but with the pobrachial and the transverse pobrachial nervures obsolete. Legs of moderate length. Abdomen smooth and shining, without transverse furrows on any of the segments.

There is a clear malar space; scape of antennæ short, thick, not much longer than broad, not much longer than the 3rd. Mandibles with a long upper and a shorter and blunter subapical tooth. Mesonotum indistinctly lobed; the furrows shallow, not clearly defind. Calcaria short. Antennæ stout, not narrowed towards the apex.

This genus has not a semicircular opening between the mouth and the mandibles, it being transverse, not rounded. In other respects it agrees fairly well with the *Braconneæ* except that the transverse median nervure is not interstitial; but it does not fit very well in to any of the tribes. The antennæ are much stouter than usual.

*Lissobracon forticornis*, sp. nov.

Black, smooth and shining, the head, thorax, except the metanotum and the front legs rufous; antennæ stout, black, the scape sparsely haired, the flagellum bare. ♀.

Length 19; terebra 50 mm.

Hab. Matang.

Head sparsely haired; the metanotum covered with longish black hair; the femora sparsely, the tibiæ and tarsi thickly cover-

ed with black hair, as is also the sheath of the ovipositor. The apical abscissa of the radius is as long as the basal two united. Recurrent nervure almost interstitial; below it is a hyaline spot. Abdomen longer than the head and thorax united; its apex bluntly pointed, the hypopygium larger, projecting.

*Trichiobracon*, gen. nov.

Hind coxæ with a large, curved and a shorter, minuter, straighter spine in the middle above. Pobrachial transverse nervure in hind wings joined to the transverse præbrachial, roundly curved towards the apex of the wing but not reaching it; pobrachial nervure short, not reaching to the middle of the wing; from near its apex a stouter oblique nervure runs to the præbrachial, forming a large, closed cellule at the base of the pobrachial. Stigma large, the radius issuing from behind its middle. Transverse median nervure recived distinctly beyond the transverse basal; the recurrent nervure received in from of the 1st transverse cubital. Occiput and cheeks margined. Malar space large. Mesopleuræ with a distinct, crenulated furrow. Parapsidal furrows deep. Median segment large, closely reticulated; its sides at the middle of the apical slope with a small, but distinct, rounded tubercle. Basal segments of the abdomen closely longitudinally striated. Cerci long, slender. Legs short and stout; the metatarsus not much longer than the 2nd joint; cerci minute. Temples broad. Ovipositor projecting.

The abdomen is broad, not much longer than the head and thorax; basal segment broad; the other segments are broader than long; hypopygium short, vertex not much depressed.

This genus is allied to *Spinaria*. It may be identical with *Acanthobracon*, Szép; but the description of that author is too short to enable me to decide this. So far as the description goes Szepligeti's genus differs from mine in the 3rd abscissa of the radius not reaching to the apex of the wing and no mention is made of the pobrachial nervure in hind wings being roundly curved, directed downwards from the præbrachial towards the apex of the wing, not obliquely sloped, straight from bottom to top as usual. This nervure, in fact, has the appearance of being a 2nd cubital nervure and may not be the equivalent of the

transverse pobrachial nervure. There is indeed, below the ordinary cubitus a longitudinal nervure which may be the pobrachial and the transverse nervure (which springs from shortly beyond its middle) may be the ordinary pobrachial transverse nervure. To put the matter in another way, above the anal cellule there are 2 large median cellules, the basal closed, the apical open—followed by the ordinary posterior cellule, also open below. I am not acquainted with any genus of *Braconidæ* having this peculiar neuration in the hind wings. If my genus be really identical with *Acanthobracon* it seems remarkable that its describer has not noticed the odd neuration.

*Trichiobracon pilosus*, sp. nov.

Luteous, the antennæ black; the wings to the transverse basal nervure yellowish-hyaline, beyond that smoky-fuscous, the stigma and apical nervures black. Legs coloured like the body, densely covered with long pale hair. ♀.

Length 10-11 mm: terebra 4 mm.

Hab. Kuching.

Antennæ as long as the body, black. Face and clypeus distinctly and closely punctured; the clypeus clearly separated from the face, which is raised and separated in the centre; both covered with long pale hair. Front and vertex smooth and shining, more sparsely haired than the face. Teeth of mandibles black. Pro- and mesothorax smooth and shining; the base of propleuræ irregularly reticulated, median segment reticulated except on the sides at the apex; the pleuræ more strongly reticulated than the rest. First abdominal segment slightly longer than its width at the apex, closely longitudinally striated; the 2nd and the 3rd segments to near the apex finely, closely longitudinally striated, as is also the 4th to the furrow; all the furrows striated.

*Cendebeus*, gen. nov.

Three cubital cellules. Recurrent nervure received in the 2nd cubital cellule, close to the 1st transverse cubital nervure;

transverse median shortly beyond the transverse basal; anal nervure interstitial; pobrachial nervure in hind wing interstitial; subcostal nervure distinct, curving down at the præbrachial nervure curving upwards again towards the costa. Occiput not margined. Temple wide. Mandibles short, broad, bluntly rounded at the apex, which is unidentate. Clypeus separated from the face. Middle lobe of mesonotum clearly separated; its base raised, its apex bounded by a transverse keel, mesopleuræ with a longitudinal furrow. Abdominal petiole of almost equal width throughout, about four times longer than wide, stout; 2nd segment with 2 furrows which convergeat towards the apex. Suturiform articulation obsolete. Legs of moderate size; the hinder coxæ twice longer than wide; spurs minute. Maxillary palpi long, at least 5-jointed. Antennæ long, slender. Stigma large, the radius originating behind its middle. Median segment large, rugose.

Belongs to the *Exothecini*.

*Cendebeus filicornis*, sp. nov.

Black, the scape of the antennæ pallid yellow; legs testaceous: the tibiæ broadly in the middle, the apices of the 4 hinder femora and the greater part of the fore tarsi, black; the wings hyaline, the stigma and nervures black; the ventral surface of the abdomen, the apices of the segments, narrowly, and the sides of the apical segments broadly testaceous; the base of mandibles dark testaceous. ♀.

Length 11; terebra 11 mm.

Hab. Kuching.

Front and vertex smooth and shining; the lower part of front irregularly transversely striated. Face closely rugosely punctured and thickly covered with white, longish pubescence; its middle shining above. Palpi white. Mesonotum closely, minutely punctured; the sutures irregularly reticulated; the depressed central apical part obscurely reticulated. Median segments closely rugosely punctured; the pro- and mesopleuræ shining aciculated. Mesopleural furrow smooth. First abdominal segment closely rugosely punctured, more coarsely at the

base where the punctures run into reticulations; the 2nd finely and closely punctured, the central part bounded by the keels more strongly than the sides. Propleuræ in the middle thickly covered with fulvous, longish pubescence.

*Habnoba*, gen. nov.

Wings with 3 cubital cellules: the recurrent nervure received in the 1st cellule, almost interstitial. Stigma distinct; the radius issuing from shortly behind its middle. Transverse basal and anal nervures interstitial. Occiput and cheeks margined. Eyes oval. Malar space large. Anterior tarsi more than double the lenght of the tibiæ; the apical half of fore femora dilated. Mesonotum trilobate. Mesopleuræ with a distinct lonigtudinal furrow. Scutellum and metanotum depressed at the base. Abdominal petiole long and slender; striated, cylindrical; the other segments smooth, without furrows or depressions. Radial cellule in hind wings divided by an oblique nervure; the pobrachial nervure interstitial; the anal cellule is divided into two by a distinct oblique nervure shortly behind the middle.

Head cubital, its temples wide; malar space moderately large; ocelli in a triangle; the hinder coxæ fully four times longer than broad; calcaria short; claws small, simple. The 2nd abdominal segment is longer than the following 3 segments united; there is an indistinct suturiform articulation; the basal joint of the hinder tarsi is as long as the other joints united. Legs long and slender; the 1st abscissa of the cubitus is roundly curved and is not much shorter than the 2nd, but longer than the 3rd.

Belongs to the *Spathiinæ*. Allied to *Leptospathius* Szép.; which has a devided radial cellule in the hinder wings but not a divided anal cellule. Characteristic is the strong mesopleural furrow as in the *Cryptinæ*.

*Habnoba petiolata*, sp. nov.

Black: the head and the greater part of the prothorax rufous; the anterior coxæ dark rufous below; the basal joint of

the 4 posterior tarsi to near the apex white. Wings hyaline, slightly infuscated, the nervures and stigma black. ♀.

Length 13-14 mm ; terebra 13 mm.

Hab. Kuching.

Antennæ longer than the body, slender, filiform, black ; the scape rufous, the basal joints of the flagellum dark rufous ; the 3rd joint shorter than the 4th. Face obscurely rugose, the centre slightly raised and separated from the sides which are smoother and more shining, clypeus clearly separated, raised, broadly rounded behind. Face and clypeus thickly covered with fuscous hair ; the hair on the clypeus longer than that on the face. Mandibles rufous, black at the apex ; the long palpi fuscous, the apical joints paler. Middle lobe of the mesonotum irregularly reticulated ; the furrows irregularly striated. Scutellum shining, minutely and closely punctured ; the basal region depressed and with a fine keel in the middle. Post-scutellum depressed, keeled laterally. Metanotum smooth and depressed at the base, irregularly transversely striated and with some irregular longitudinal keels. The centre and the apex of the propluræ strongly irregularly striated ; the oblique furrow on the base and the lower longitudinal one stoutly striated ; the base of the metapleuræ shagreened ; the rest stoutly reticulated. Pleuræ and sternum thickly covered with silvery pubescence. Petiole closely, distinctly transversely striated. On the base of the 2nd segment is a raised area, longer than broad, slightly narrowed towards and rounded at, the apex ; the rest of the segment finely, longitudinally striated. Legs covered with a pale pubescence ; the tarsi spinose ; the hinder coxæ and trochanters minutely punctured ; the front legs have the femora and tibiæ piceous in front. Sheaths of ovipositor black, covered with a soft microscopic pubescence.

*Ediya*, gen. nov.

Recurrent nervure received shortly beyond the middle of the 1st cubital cell, transverse basal nervure shortly beyond the transverse median : anal nervure not interstitial. Radial cellule in hind wing bordered by a distinct nervure in front ; præ-

brachial nervure not interstitial above or below; the pobrachial transverse nervure received considerably in front of it; the pobrachial continued to the end of the wing; the pobrachial cell narrow at the base, much widened at the apex. Hind femora not much thickened, serrate beneath. Labrum projecting. Mandibles curved, with a short subapical tooth. First abdominal segment wide at the base, becoming wider towards the apex, as long as the 2nd and 3rd segments united. Thorax in ♂ longer than the abdomen; the pro- largely developed.

The head is cubital; the clypeus clearly separated from the face; the front depressed, its sides keeled; metanotum areolated. Mesopleuræ furrowed below. Metatarsus shorter than the other joints united. Calcaria and claws small.

Comes near to *Euseelmus* (also from Sarawak) but that genus may be known from it by the hind femora being thickened, by the recurrent nervure being received in the 2nd, not in the 1st cubital cell, and by the shorter thorax.

*Edyia anulicornis*, sp. nov.

Black, shining, the middle of the antennæ broadly, labrum, almost the basal half of the hinder tibiæ and the hinder tarsi white; the 4 front legs white, their femora with a slight fulvous tinge, their coxæ black, with a brownish tinge; wings hyaline, the stigma fuscous, the nervures darker. ♂.

Length 9 mm.

Hab. Kuching.

Face coarsely rugosely punctured, its sides irregularly longitudinally striated; clypeus more finely longitudinally punctured; front and vertex smooth, the frontal depression bordered by a stout, obique keel. Pronotum stoutly, irregularly striated. Middle lobe of mesonotum strongly punctured and thickly covered with white hair, its apex irregularly reticulated; it is raised and clearly separated; the lateral lobes are sparsely punctured. Scutellum punctured on the basal half; its basal depression with a straight central keel, with an oblique one on either side. Post-scutellum with a stout keel down the centre and a stout transverse one across the middle, dividing it into 4

parts. Metanotum areolated irregularly reticulated, the areæ longer than broad. Mesopleuræ smooth, punctured above and below. Metapleuræ closely rugose. Basal segment of abdomen irregularly longitudinally striated. The hinder femora are serrate beneath in the middle, the teeth not being well developed.

*Enagathis erythrocephala*, sp. nov.

Black, the scape of antennæ, head, pro- and mesothorax red, the fore legs of a less clear red, the middle coxæ from near the base, trochanters and femora, fuscous-black, the rest of the legs of a dark red; wings fuscous-violaceous, paler on the costal cell, the nervures and stigma black. ♀.

Length 8-9 mm; terebra 1 mm.

Hab. Kuching. January.

Scape of antennæ covered with white, the flagellum thickly with stiff, pubescence. Front and vertex smooth; a curved oblique furrow above each antenna. Face distinctly punctured, roundly dilated in the middle; the clypeus less strongly punctured, deeply foveate at the sides. Mandibles rufous, palpi rufo-testaceous. Prothorax impunctate; the mesothorax punctured, but not closely or strongly, the scutellum more strongly punctured; scutellar depression deep, with 2 stout keels in the centre; scutellum roundly convex, with a bordering keel on its apex below; post-scutellum bordered by a stout keels and with a stout one in the centre. In the centre of the metanotum, at the base, is an area, fully twice longer than wide, transverse at the apex, gradually narrowed towards the base, with the keels curved; outside this is another area of nearly equal width; on the sides are some irregular striæ, especially at the apex. The apical slope is bordered above by a keel and has a few stout longitudinal keels. The long spur of the middle leg is nearly as long as the basal joint of the tarsi. Abdomen smooth and shining.

Apart from the difference in colouration, etc., this species may be known from *E. creophora* by the long spur of the middle tibiæ. In the latter species it is short as usual.

*Enagathis creophora*, sp. nov.

Black, the head, the fore legs, pro- and mesothorax red; the wings dark fuscous, the stigma and nervures black; the metapleuræ thickly covered with white pubescence. ♀.

Length 10, terebra 1 mm.

Hab. Kuching.

Scape of antennæ obscure reddish below. Head smooth and shining, the face and clypeus thickly covered with fuscous pubescence. Middle lobe of mesonotum distinctly raised, but not separated by furrows from the lateral. Scutellum with a distinct, raised margin, which is highest at the apex; the keels are bordered, on the inner side by a furrow, which, at the apex, has a few indistinct keels. Post-scutellum opaque, strongly aciculated, flat, transverse at the base, roundly narrowed towards the apex. On the base of the metanotum is a curved obliquely depressed rounded area, with its middle triangularly bent inwardly; next to this are 7 areæ, all longer than wide, the central of equal width and twice longer than wide; the outer still longer, the apical slope is oblique, surrounded by a stout keel; in its centre is an area which becomes slightly narrowed towards the apex; at the sides is an area of equal width throughout; on either side of the central area is a keel which only extends to the middle. Pro- and mesopleuræ smooth; on the centre of the meso- on the lower half is an oblique row of long, stout keels; the apical furrow is crenulated; on the base of the metapleuræ are 3 stout keels. Tarsi thickly covered with short stiff hair. The 1st transverse cubital nervure is straight and sharply oblique; the 2nd is much shorter, not oblique, roundly curved; the recurrent nervure is bullated near the top.

This may be *E. pilosus* Szép.; but the 25 words of that author's description, dealing mainly with the colour, are not sufficient for identification. In my species the 4 front claws are bifid; the hinder subbifid, the basal claw being short. There is no branch on the 2nd transverse cubital nervure, but it is thickened in the middle.

*Agathis malayana*, sp. nov.

Luteous, the antennæ and the hinder tibiæ and tarsi black; the 3rd and following segments of the abdomen blackish; the apex of the wing from the transverse basal nervure fuscous, the base above to the transverse basal and below to near the commencement of the anal nervure, hyaline, the apex of the hind wings broadly fuscous. ♀.

Length 7-8 mm.

Hab. Singapore.

A small curved depression at the outerside of the hind ocelli. Head, pro- and mesonotum smooth and shining; the middle lobe of mesonotum with 2 wide, shallow furrows near the middle a shallow, wider one on the lateral lobe. Scutellum distinctly, but not very strongly, punctured; its sides and apex margined, the apex more strongly keeled. Post-scutellum depressed, stoutly margined. Base of metanotum with a wide area in the middle at the base; its bounding keel roundly curved and curved towards the apex in the middle; behind this are 6 areæ, in 2 rows of which the outer apical are the larger; these are bordered by a keel which is angled outwardly in the middle; and the sides, outside the spiracles, are bordered by a stout keel. Pro- and mesopleuræ almost impunctate, there is a narrow straight oblique keel above the middle of the latter; its curved apical keel is wide, bears some stout keels and commences shortly below the middle; the apical depression bears stout keels, as does also that on the base of the metapleuræ. Areolet triangular, the nervures uniting at the top, they are straight and oblique, except the 2nd which is narrowed and not so oblique below; there is no branch on the 2nd cubital nervure; the recurrent nervure is distinctly interrupted above.

*Disophrys ornatipennis*, sp. nov.

Black, the head, except the front, the vertex and occiput broadly in the middle, pronotum, upper half of propleuræ, the centre of the mesonotum between the sutures and scutellum; the scutellum and adjoining region, metanotum, except a broad

curved band on the top of the apical slope, the upper part of the mesopleuræ and the metapleuræ, except in the middle, reddish-yellow. Four front legs luteous, the hinder black, the coxæ, trochanters, femora and tibiæ luteous, below. Ventral surface of abdomen for the most part testaceous; the base above testaceous, stoutly tuberculate laterally. Fore wings to the base of the cubitus, the 1st cubital cellule broadly above yellowish-hyaline the rest blackish-fuscous; with a curved hyaline cloud in front of the recurrent nervure; the basal half of the hind wings yellowish-hyaline, the rest fuscous, the apical cloud prolonged obliquely backwards below; the stigma black, yellow at the base. Antennæ black, brownish towards the apex. ♂.

Length 12-13 mm.

Hab. Matang. August.

Face minutely punctured, the centre from near the top bordered by furrows, which end in foveæ above the clypeus which is minutely punctured. Labrum large, broadly rounded. Front depressed in the middle, the depression bordered by furrows, which are roundly curved above, converging below; the lateral keels reach to the ocelli. Parapsidal furrows wide, bearing stout keels, forming deep foveæ; at the apex they converge, but do not unite. Apex of scutellum with a transverse stout keel. Metanotum depressed at the base, the sides more deeply than the centre; at the apex of the depression is an area, longer than wide, which becomes gradually wider to the apex, which is transverse and bears a stout transverse keel; following this is a depression about 3 times wider than long, rounded, but not much narrowed, at the apex and bordered by larger, longer depressions, wide at the base, becoming narrowed gradually to a point at the apex and touching the curved keel surrounding the apex; outside it are 2 larger wider depression, the outer being the larger. Pleural and sternal depressions wide and bearing stout keels all over.

*Disophrys niger*, sp. nov.

Black; the palpi and anterior tarsi pale testaceous, the wings black to the areolet, the rest milk-white, the apex of stigma and apical nervures pale yellow. ♂.

Length 8 mm.

Hab. Kuching. March.

Smooth and shining, the median segment irregularly areolated. The furrow in the centre of the edge of the mesonotum crenulated; scutellar depression large and deep, with 3 stout keels, the central slightly higher than the lateral. Scutellum flat, narrowed obliquely towards the apex, which is keeled; post-scutellum hollowed, the sides stoutly keeled, slightly obliquely narrowed towards the apex, the centre being transverse. The central basal area of the metanotum is large, about twice longer than wide, and rounded at the apex. On the base of the mesopleuræ in the middle are 5 stout, irregular keels, the space between them being depressed; below them, and placed obliquely, are 3 large foveæ, the apical being the larger. Metapleuræ with 3 stout curved keels, which have some oblique keels at the base, and on the upper and lower parts, these forming irregular areæ; the apex is bounded by a stout keel. Abdomen smooth and shining; the basal 2 segments distinctly margined laterally, the 2nd with a transverse curved furrow in the middle.

The lateral keels on the front are large and raised below, becoming narrowed above and do not reach to the ocelli; in the centre of the front are 2 stout keels which converge above, and are dilated at the base of the antennæ. Areolet longer than broad; its basal nervure with a distinctly oblique slope. Scape of antennæ about 3 times longer than wide. There is no appearance of a stump on the 2nd transverse cubital nervure.

*Disophrys fumipennis*, sp. nov.

Luteous, smooth and shining, the flagellum of antennæ and the hind tibiæ and tarsi, black; wings fuscous, highly iridescent, the base from the transverse median nervure and an oblique cloud, extending from the base of the stigma to the anal nervure, hyaline; the stigma and nervures black. ♀.

Length 7-8; terebra 1 mm.

Hab. Kuching. October.

Face and clypeus sparsely punctured and covered with white pubescence, the front and vertex smooth and shining; the centre of the face above is roundly incised, the incision longer than wide and with its sides projecting above. The raised central lobe of the mesonotum is widely furrowed on the basal half. Scutellar depression large, deep and with a stout keel in the middle. Scutellum with the sides and apex keeled, the latter more strongly than the former. Post-scutellum as wide as the scutellum, depressed at the base, roundly raised, its sides keeled. Base of metanotum with a large, somewhat semicircular area; behind this are 5 areæ; the central with stouter keels and slightly narrowed towards the apex, the outer obliquely narrowed towards the apex, almost triangular; the apex has an oblique slope and is bounded by keels on the top and sides, there being none in the centre. Pleuræ almost impunctate; the oblique furrow on the lower apical part of the mesopleuræ is shallow; and has a few obscure keels; on the lower side of the metapleuræ in the middle is a large projecting plate, dilated at the base, rounded at the apex and hollowed in the centre above. Areolet rounded and narrowed above; the 2nd transverse cubital nervure has a short, stout branch above the middle; the recurrent nervure is interrupted at the top and above the middle leaving a small isolated piece.

*Microdus natangensis*, sp. nov.

Rufous-luteous, the flagellum of antennæ blackish; wings yellowish-hyaline, the nervures and stigma luteous, the latter black at the base, where there is a small equare fuscous cloud, extending shortly beyond the cubitus; the basal three abdominal segments closely longitudinally striated, the 2nd with a transverse, slightly curved, furrow shortly beyond the middle. ♂.

Length 13 mm.

Hab. Matang

Head, pro- and mesothorax smooth and shining; parapsidal furrows smooth. Base of metanotum depressed; in the centre are two keels, which are close together on the basal third, then expand obliquely outwardly, then running straight to the apex. Abdominal petiole smooth and obliquely depressed at the apex, the middle is depressed.

ICHNEUMONIDÆ.

TRYPHONIDES.

*Bentyra*, gen. nov.

Median segment deeply depressed at the base; there is one transverse keel, behind which the segment is closely transversely striated; the spiracles small, oval. Areolet absent; the transverse basal nervure interstitial; disco-cubital nervure broken by a stump. Parapsidal furrows deep; a wide, deep depression at the base of the scutellum. A deep, oblique furrow on the basal half of the mesosternum. Eyes large, temples and malar space small. Clypeus roundly convex, not separated from the face; its apex minutely bituberculate. Mandibles stoutly bidentate, the teeth of equal size. Petiole stout, becoming gradually wider towards the apex; the spiracles are placed shortly beyond the middle. The middle segments are depressed at the base; the last is longer than the preceding; the ovipositor projects.

Radial cell wide in the middle, compared with its length; the basal and apical abscissa straight, sharply oblique; occiput margined, a deep furrow between the keel and the ocelli; the head is large and is distinctly wider than the thorax; there are 2 spurs on the 4 hind legs; on the front tibiæ the spurs there is one, cleft from near the base, the one tooth being broad, stout, the other more slender; claws small, simple; the long spur of the hind tibiæ does not quite reach the middle of the metatarsus; in the hind wings the transverse median nervure is broken distinctly below the middle. Middle lobe of mesonotum widely separated from the scutellum furrowed down the middle. Antennæ long and filiform, the basal joints of flagellum greatly lengthened.

Belongs to the *Tryphonidæ*, a group which appears to be rare in the tropics.

*Bentyra striata*, sp. nov.

Black, abdomen rufous, the face, except for a brown line in the centre, the inner eye orbits somewhat broadly, the line ex-

tending on to the hinder edge of the eyes, a broad line on the pronotum, one on the basal half of the middle lobe of the mesonotum, 2 shorter ones on its apex on the lateral lobes, scutellums, the apex of the median segments, the mark roundly dilated backwards in the middle, the lower edge of the propleuræ, an irregular mark under the hind wings and a large mark an the lower apical half of the metapleuræ, bright yellow. Legs rufous, the anterior paler; the 4 front coxæ and trochanters yellow; the hinder coxæ black, with a large yellow mark on the apex above; the apex of the hinder tibiæ black; the hinder tarsi infuscated. Wings hyaline, a small fuscous cloud near the centre of the radius and cubitus, the stigma and nervures black. ♀.

Length 7 mm.

Hab. Kuching.

Antennæ slender, longer than the body, fuscous; the scape obscure yellow beneath. Face and clypeus closely, transversely punctured; the front and vertex closely obliquely striated; the front with 2 stouter longitudinal keels down the centre. Meso- and metanotum closely, finely transversely striated. Upper part of propleuræ closely obliquely striated, the lower smooth, the upper part of meso- closely longitudinally striated, the lower closely rugose; upper half of meta- coarsely obliquely striated, the lower distinctly punctured.

PIMPLINA.

*Epirhyssa spiloptera*, sp. nov.

Black, the face, clypeus, inner orbits to the top, the outer more broadly (but narrowly above) from near the top, malar space, the upper side, apex, lower side, except in the middle of the prothorax, scutellum, except at the apex, post-scutellum, the median segment except at the base, apex and lower side of pleuræ, the meso-, except at the base, below the tubercles and a large curved mark, with a narrow oblique pedicle below the latter, mesosternum, a longish mark, becoming gradually wider towards the apex, which is transverse on the 1st, a somewhat similar mark on the 2nd, but with its apex transverse, not rounded and with the sides at the apex projecting; a

band near the apex of the 2nd and following segments, the lines dilated and turned backwards below along the sides, yellow. Legs yellowish, the fore femora above, the middle at the base below and more broadly above, the hinder, except at the apex, the base of the hind tibiæ, and the 4 hind tarsi, black. Wings hyaline, the apex from the transverse cubital to shortly beyond the apex of the cubitus fuscous-violaceous; the stigma testaceous, the nervures black. ♀.

Length 18 mm.; terebra 33 mm.

Kuching. October.

Apex of clypeus roundly incised. Scutellum transversely punctured; its black apex longitudinally, coarsely striated. Median segment closely punctured; the metanotum with a smooth furrow down its centre. Propleuræ almost smooth, the meso- closely punctured. Abdomen smooth; the black on the middle segments has a brownish tinge.

*Epirhyssa maculiceps*, sp. nov.

Black, the face, except for an irregular bell-shaped mark in the centre, a mark on the front, longer than wide, clypeus, labrum, inner orbits to the hind ocelli, the outer from near the top, malar space, pronotum, 2 curved marks, narrowed at the apex, on the middle lobe of the mesonotum at the base, a broad line on the inner side of the lateral lobes, one along their outer edge, scutellum, except at the apex, its keels, the depressions at the sides of the post-scutellum, the lower edge of the propleuræ, mesopleuræ, except in the middle at the apex, median segment, except for a large conical mark on the apical two-thirds of the metanotum and the apices of the abdominal segments, broadly yellow. Legs yellow, the tibiæ and femora suffused with fulvous; the inner and lower side of the hind coxæ black; the hind tibiæ in front, except in the middle, their apex all round and the hinder tarsi blackish. Wings hyaline, clouded at the apex from the transverse cubital nervure; stigma fuscous, the nervures blackish. ♀.

Length 12; terebra 13 mm.

Hab. Kuching. March.

Antennæ fuscous-black. Face and clypeus closely punctured, the centre of the face obscurely striated; the front and vertex smooth. Scutellum rugosely punctured, its apex transversely striated. Median segment sparsely covered and the abdomen thickly covered with white hair; the middle segments closely punctured. Tarsi spinose.

*Xanthopimpla Kuchingensis*, sp. nov.

Luteous, the vertex and the lower part of the front broadly in the centre, the occiput between the eyes, a large mark on the mesonotum in front of the tegulæ, squarely dilated in the centre at the base, with the sides rounded, a mark on the scutellar depression, the 2 basal lateral areæ, the areola narrowly at the base, a large mark, slightly, but distinctly broader than long, on the 1st abdominal segment, a large, transverse mark, slightly incised in the middle of the apex, on the 2nd and 3rd, 2 large marks, obliquely narrowed, on the innerside, 2 widely separated marks on the 4th and 5th (that on the 5th less distinct), black. Antennæ black, the scape obscure yellow, the flagellum brownish below. Areola large, its basal part obliquely narrowed, the slightly shorter apical slightly narrowed, the apex transverse; the 2 basal areæ are slightly wider; the 2nd a little widened towards the outerside. Areolet 4-angled, shortly appendiculated; the recurrent nervure is received between the middle and apex. ♀.

Hab. Kuching. August.

*Xanthopimpla claripennis*, sp. nov.

Luteous, the ocellar region, a broad band, roundly curved in front, more transverse behind, near the base of mesonotum, a broad band across the base of the metanotum, a large mark, roundly dilated at the apex, roundly contracted at the base, on the centre of the 1st segment an irregular spot, wider than long and narrowed on the outerside on the 2nd, a large, oblique mark, rounded laterally, widely contracted in the centre at the base and more narrowly at the apex, on the 3rd, a small mark (but wider and more regular than the small mark on the 2nd) on the sides of the 4th, a large, regular transverse fully twice

wider than long one on the 5th, a small mark (the smallest of the series) on the sides of the 6th, 2 large marks, narrower, but thicker and narrowed roundly on the innerside, on the 7th, and 2 marks, transverse on the outerside, narrowed roundly on the inner, on the 8th, black. Legs of a paler yellow than the body, a large black line on the under side of the 4 hinder femora, the base behind of the 4 hinder tibiæ and the 4 hinder tarsi, black. Wings clear hyaline, the nervures and stigma black; the areolet oblique, triangular, shortly appendiculated. The areola is large, longer than wide by about one-fourth; its apex transverse, slightly, but distinctly, narrowed from shortly beyond the middle to the base; the basal lateral area is large, dilated at the base, the 2nd is wider than long, with straight sides, and of equal width throughout. Antennæ black. The recurrent nervure is almost united to the 2nd transverse cubital.

Length 8-9; terebra 2 mm.

Hab. Kuching, April.

*Echthromorpha robusta*, sp. nov.

Black, head, except the occiput broadly, the centre of the vertex and front, scutellums, 2 short marks on the base of the mesonotum, a large, curved mark on the sides of the metanotum, reaching to near the base, extending on to the pleuræ, in front of and behind the spiracles, tubercles, a large, irregularly semicircular mark on the basal half of the mesopleuræ, a small oblique one on the apex below, the apices of the abdominal segments—the basal band broader than the others, which are narrowed in the middle,—lemon-yellow. Legs similarly coloured, the hind coxæ broadly below, an oblique broad line, expanded at the apex, above, a long broad line on the innerside of the hind femora and a narrower one on the outer, the base of the tibiæ and the hind tarsi, black. Wings hyaline; the nervures and stigma black; the apical cloud dark violaceous. ♀.

Length 17 mm.; terebra 5 mm.

Hab. Matang.

Mesonotum distinctly, but not strongly or closely, punctured; the 2nd and following segments of abdomen closely and

distinctly punctured, the basal smooth and shining; pedicle of areolet more than half the length of the 2nd transverse cubital nervure.

This is a more robust species than *E. maculipes*; its thorax is much less strongly marked with yellow, the 2 yellows lines on the mesonotum only being present at the base, the basal mark on the mesopleuræ is smaller and not reaching to the lower edge, the sternum is black, and the pedicle of the areolet is longer.

*Echthromorpha maculipes*, sp. nov.

Black, the face, clypeus, orbits, the yellow below the ocelli expanding inwardly, this contracting the black mark in the centre of the front; the lower outer orbits entirely, malar space, 2 lines on the mesonotum, expanded outwardly at the base, scutellums, the keels running from them, the metanotum except for a large black mark in the centre, its basal half broader than apical and becoming gradually, rounded narrowed to the apex; the apical half becoming slightly gradually wider to the apex; on the sides a broad line runs to the spiracles; propleuræ black, yellow at the base; mesopleuræ yellow, its base, a band under the tubercles, the top, a large band on the apex, irregularly, slightly incised at the base and apex, where it joins the black on the mesosternum, thus having a large mark, narrowed and rounded at the apex, on either side and reaching shortly beyond the middle. Metapleuræ yellow, its base black to near the bottom. All the abdominal segments lined with yellow; the 1st broader and the last narrower than the others; the others slightly narrowed in the middle. Wings hyaline, with a slight fulvous tint; the nervures and stigma black; the usual apical cloud has a violaceous tinge. Legs yellow; the hind coxæ broadly, irregularly black below and laterally; above, and joined to the lower black mark, is a black mark, which becomes gradually wider towards the apex and extending from there to the base; there is a large broad black band on the upper innerside, a narrower one on the outer, the two almost uniting at the apex, a large band in the centre below and the base of the hinder tibiæ, black; the hind tarsi black, fuscous at the base. Scape yellow below.

Mesonotum distinctly punctured, the punctures clearly defined and separated; the 2nd and following abdominal segments closely and distinctly punctured.

Length nearly 15; terebra nearly 5 mm.

Hab. Kuching. June.

OPHIONINA.

*Pleuroneurophion malayanus*, sp. nov.

Dark luteous, the apical half of the abdomen darker coloured, the face, clypeus and orbits pallid yellow; the mesosternum blackish; wings hyaline, the nervures and stigma blackish. ♀.

Length 20 mm.

Hab. Borneo.

Head smooth, shining and almost bare. Mesonotum darker coloured than the scutellum, closely, minutely punctured. Sides of scutellum keeled, the keels becoming indistinct towards the apex which is broadly rounded; the base obscurely punctured, the rest not very strongly or regularly longitudinally striated. Post-scutellum broader than long, projecting, rounded from the base to the apex. Base of metanotum smooth, the basal depression stoutly, but not closely striated; the rest closely, stoutly, irregularly transversely striated and reticulated, the sides with a bordering keel. Pro- and mesopleuræ closely, minutely punctured and covered with a fine down; the upper part of the meta- stoutly, obliquely irregularly sriated. The basal abscissa of the cubito-disco-nervure is slightly curved upwards at the base, slightly, but more distinctly, downwards at the apex before the angle which is distinct but does not bare a stump of a nervure. Cubitus in hind wings roundly curved. The part of the cubito-disco nervure before the angle is distinctly shorter than that between it and the recurrent nervure.

This species differs from *P. grandis* in the disco-cubital nervure not being angled before the middle, but otherwise it agrees with the main features of the genus, *e. g.* in the transverse median nervure being received behind the transverse basal, in the radius being thickened at the base and in the trans-

verse median nervure in hind wings being broken below the middle. In both species the recurrent nervure is received directly opposite to the base of the basal abscissa of the radius.

*Pleuroneurophion grandis*, sp. nov.

Luteous, the head paler, apex of abdomen darker, pro- and mesothorax closely punctured; scutellum, except at the base, irregularly transversely striated, its keels curved inwardly at the apex, which is transverse, the basal depression with a stout keel in the centre; the post-scutellum is separated from it by a deep furrow, its side being oblique; the post-scutellum has an oblique slope towards the apex and is bordered by straight keels. Basal depression of metanotum large, deep; there is a central keel and the apex is stoutly irregularly, striated; the part behind the keel is closely, minutely punctured; the rest irregularly, strongly transversly reticulated; metapleural keel stout, roundly curved at the apex. Disco-cubital nervure roundly, broadly, not acutely angled before the middle; there is no trace of a stump of a nervure. The basal 2 segments of the abdomen are as long as the head and the thorax united. The cubitus in the hind wing is straight, not curved at the base and apex; the apical abscissa is the longer and is not sloped like the basal. The part of the disco-cubital nervure behind the angle is slightly longer than that between it and the recurrent nervure.

This is one of the largest species. Himalayas.

*Eniscospilus nigropectus*, sp. nov.

Luteous, the middle of the abdomen paler, the mesonotum, mesopleuræ, mesosternum and the apical 3 segements of the abdomen black; wings hyaline, the nervures and stigma black; there is only one horny point; it is longer than broad, conical, transverse at the apex, rounded and narrowed behind. ♀.

Length 17 mm.

Hab. Kuching.

Head smooth and shining, the ocellar region black. Behind and above the curved keel on the mesopluræ are stout keels,

which become gradually longer below, the lower ones reaching beyond the middle of the mesopleuræ. Scutellum stoutly keeled laterally its apex with 3 or 4 irregular, curved keels. Post-scutellum keeled. Metanotum behind the tranverse keel smooth, stoutly irregularly, mostly longitudinally striated, the striæ in places forming almost reticulations, especially at the sides; metapleuræ above irregularly reticulated. Transverse median nervure interstitial; disco-cubital nervure roundly curved; first discoidal cellule distinctly shorter than the second, the recurrent nervure being received about 4 times its length behind the transverse cubital, its base not half the length of the apex.

*Trichonotus*, gen. nov.

Hind wings with the cubital nervure unbroken; disco-cubital nervure not interstitial with the discoidal; 3rd discoidal cellule not narrowed at the base; 2nd nearly twice as wide at apex as at base. Labrum hidden. Chypeus projecting, narrowed and rounded at the apex. Thorax thickly covered with long pubscence, the mesonotum reticulated, scutellum distinctly keeled laterally. Median segment produced at apex, depressed at base; petiole dilated above at apex. Claws minute, simple. Hind tibiæ longer than tarsi. Recurrent nervure received beyond transverse cubital, the transverse median shortly beyond transverse basal. Basal joint of hinder tarsi not thickened, slightly longer than the other joints united.

Comes close to *Atrometus* Foer. The characteristic features are the unbroken transverse median nervure in hind wings, the large, flat, keeled scutellum, the petiole dilated above and the longish hinder tibiæ compared with the tarsi.

*Trichonotus reticulatus*, sp. nov.

Black, the head and thorax densely covered with grey pubescence; the face, inner orbits, the lower outer, scape of antennæ and tegulæ, lemon-yellow; the sides and lower part of petiole yellow; the upper part behind the dilated apex dark rufous, the top of the 3rd pale yellow, the apices of the others

testaceous. Four front legs, hinder coxæ, apical joint of trochanters and the basal three-fourths of hinder tibiæ, yellow; the rest of hind legs black, with the femora rufous beneath. Wings hyaline, stigma dark testaceous. ♀.

Centre of face irregularly, longitudinally striated, base of clypeus irregularly punctured. Mesonotum strongly reticulated. Sculpture of scutellum hid by the dense hair. Metanotum irregularly reticulated, the pubescence dense, long and pale golden. Pro- and mesopleuræ stoutly, longitudinally striated; the meta- reticulated.

## Xorides.

*Cænostoma*, gen. nov.

Wings without an areolet, the recurrent nervure received shortly before the cubital; the transverse median behind the transverse basal. Cubital nervure in hind wings broken below the middle. Clypeus depressed, its apex broadly rounded. Labrum large, as long as the clypeus, broadly rounded at the apex and slightly narrowed above. Mandibles edentate, becoming narrowed towards the apex, which is bluntly rounded. Apex of face obliquely raised, with a fovea on either side of the middle. Thorax about 4 times longer than wide; the middle lobe of mesonotum clearly separated; scutellum flat, deeply bifoveate at the base; post-scutellum bifoveate. Median segment longer than broad, reticulated, its apex transverse and with a large tubercle on either side of the apex. First segment of abdomen fully 4 times longer than wide, as long as the 2nd and 3rd segments united; narrowed at the base, the spiracles placed shortly behind its middle; a curved depression before its middle; triangular depression—sharply printed at the base—on the 2nd and a shorter, rounded one on the 3rd segment. There are 8 abdominal segments. Four front legs slender, of moderate length; the middle coxæ longer than usual and longer than the anterior; the hinder legs much stouter and longer; the coxæ about 4 or 5 times longer than wide; the trochanters half their length; femora stout, the tibiæ as long as the trochanters and femora united; the metatarsus as long as the other

joints united; claws small. Antennæ filiform, bare, longer than the body, the 3rd and 4th joints equal in length; the scape globular, not much longer than broad. Disco-cubitus not broken by a nervure.

I only know the ♂ of this genus of *Xorides*. The front tibiæ are not inflated as in many of the genera of the group. Its affinities are clearly with *Spiloxorides;* but that genus has the median segment areolated, not reticulated, much shorter and not tuberculate laterally at the apex, its hinder coxæ much shorter and the basal joint of the hinder tarsi is shorter than the other joints united, being not much longer than the 2nd and 3rd united.

*Cænostoma filicornis*, sp. nov.

Black, labrum, clypeus, orbits broadly, the edge of the pronotum, scutellum, the 4 front legs, the basal two-thirds of the hinder tibiæ and the hinder tarsi, yellow; the hinder coxæ and femora rufo-testaceous; the extreme base of the hinder coxæ, their apical third, trochanters, base of tibiæ narrowly and their apical fourth, black; the apices of all the abdominal segments banded with yellow; wings hyaline, the nervures and stigma black, the base of latter white. ♂.

Length 13-14 mm.

Hab. Kuching.

Face closely punctured, obscurely, closely transversely striated above; front and vertex smooth and shining. Middle lobe of mesonotum raised, transversely striated; the apex at the scutellum with 3 longitudinal striæ. Scutellum smooth; its basal foveæ large wider than long; post-scutellum with 2 longer than wide foveæ. The reticulations irregular, much longer than wide. Propleuræ smooth, the meso- shagreened and thickly haired, the meta- closely reticulated. Base of petiole smooth; in the centre are 2 narrow keels with a keel on either side, the rest closely, irregulary reticulated; the 2nd segment is punctured at the base, with the furrows and depressions closely striated; there is a curved furrow. On the apex

of the 1st segment, behind extending to the sides and having the yellow apical band prolonged along its sides; the apex of the segment is roundly dilated in the middle; the 2nd and 3rd are raised in the centre, depressed behind the raised part.

*Spiloxorides erythrocephalus*, sp. nov.

Black; the head dark red, the vertex marked with black; the last abdominal segment white above; the 4 front legs red; the middle pair darker; the basal joints of antennæ dark red; wings hyaline, a broad band along the transverse basal and transverse median nervures and a shorter one along the transverse cubital, extending into the radial cellule and along the innerside of the recurrent nervure; the nervures and stigma black. ♂.

Length 10 mm.

Hab. Kuching. October.

Antennæ longer than the body, densely covered with longish, stiff, outstanding hair. Face covered with stout, curved, transverse striæ, the apex with a transverse furrow, clypeus and labrum almost smooth. Mandibles rufous, black at the apex. Vertex smooth, the front closely, transversely striated, the striæ on the sides oblique. Middle lobe of mesonotum raised, clearly separated, its base with a stout transverse keel, which projects at the sides; its apex stoutly, irregularly reticulated; the furrows—parapsidal and lateral—crenulated. Basal depression of scutellum deeply bifoveate. Scutellum smooth, its sides keeled at the apex. Post-scutellum keeled laterally. The base and apex of the metanotum distinctly, transversely striated; the striæ distinctly separated; it is areolated; there is a central area, which, at the base, is narrow and of equal width, then becomes wider, with the sides bulging roundly outwardly; the posterior part is closely transversely striated. Pro- and mesopleuræ smooth; the meta- coarsely, irregularly reticulated. First segment of abdomen rugosely punctured; the 2nd is more finely rugose, the others smooth; the basal segments are fringed with white hair and their depressions are striated; the other depressions smooth.

*Cyancoxorides rufomaculatus*, sp. nov.

Blackish-blue, the thorax, except the mesonotum, scutellums and the central area of the metanotum, rufous; the head deep black, the face, the edge of the inner eye orbits to the ocelli, the line roundly narrowed above and below and the lower half of the outer orbits broadly pale yellow; the base of the 1st abdominal segment, a longish mark, its basal third becoming gradually wider, then becoming narrowed again to the apex, which is, like the base, rounded; there is a similarly shaped white mark, but much shorter and broader, on the apex of the 2nd segment, the apices of the other segments are narrowly banded with a clearer white colour. The 4 front legs and the hinder coxæ are coloured like the thorax; the middle tibiæ are paler in front and fuscous behind; the basal and apical joints of the middle tarsi black, the middle white; the hind trochanters, femora, tibiæ and apical joint of tarsi, black, with a blue tint; a line near the base of the tibiæ and the tarsi, white. Wings clear hyaline, the nervures and stigma black; the latter with a white band at its base. ♀.

Length 18 mm.; terebra 16 mm.

Kuching, June.

Face closely punctured, its apex curved roundly and obliquely depressed, reddish, as is also its centre and the clypeus. Front and vertex smooth, shining; and with purple tints. Mandibles black, rufous at the base. Mesonotum closely, minutely punctured; its central part in the middle closely reticulated; the middle at the apex with some stout, curved longitudinal keels. Apical slope of scutellum irregularly striated. Post-scutellum stoutly keeled laterally and there is also a central keel. Metanotum strongly, irregularly striated; the black central area is stoutly, irregularly reticulated. Pro- meso- and the lower half of metapleuræ smooth; the upper half of metapleuræ irregularly punctured at the base, the apical half irregularly obliquely striated; this part is bordered below by a distinct and above by a less distinct, longitudinal keel; on the apical slope are 6 areæ in 2 rows, the basal areæ being the larger. Basal 3 segments of abdomen closely, minutely punc-

tured; the depressions and furrows closely, striated; the first segment, between the keels, more strongly and irregularly transversely striated.

This species may form the type of a new genus, when more species of this group are available for study. The areola is not contracted, but is of equal width throughout, the labrum is not obliquely depressed, the body wants the distinct metallic blue texture, and the wings are not spotted.

*Cyanoxorides cæruleus*, sp. nov.

Blue, the 5th abdominal segment white above; the legs bronzy black, the femora brighter in tint; the front legs testaceous especially anteriorly; the hinder coxæ rufous; antennæ black, covered with short, stiff black pubescence; the middle with a broad white band; wings hyaline; a fuscous band along the transverse median and the lower half of the transverse basal and a broad band, extending from near the base of the radial cellule to shortly beyond the transverse cubital and recurrent nervures; the stigma and nervures, black, the former with a white spot at the base. ♀.

Lenth 13-14; terebra 8 mm.

Hab. Kuching.

Face smooth, its sides depressed, transversely striated in the middle above; the clypeus clearly separated from it and obliquely depressed towards the base where is a furrow, which becomes oblique at the sides. Front and vertex smooth and shining; the frontal keel is stout. Base of mandibles testaceous. Middle lobe of mesonotum covered with black pubescence; its apex striated; on the middle, near the scutellum, are some longitudinal keels. Scutellum roundly convex, sparsely punctured; in the centre of the basal depression are 2 stout keels; the postscutellum rounded; its sides depressed. Median segment smooth and shining and covered with pale pubescence; the pro- and mesopleuræ less shining, more opaque and covered with dark pubescence. Abdomen covered with white pubescence; the basal three segments closely, finely longitudinally striated and minutely punctured; the apical segments smooth; the last is

depressed in the middle at the base. Ventral surface more or less brownish. Sheaths of ovipositor covered densely with black pubescence.

ACŒNITINI.

*Siphimedia iridicolor*, sp. nov.

Black, with distinct blue and violet iridescence; the front femora and tibiæ brownish beneath; a broad pale line on the lower half of the inner eye orbits; wings hyaline, highly iridescent, the nervures and costa black. ♀.

Length 11 mm.; terebra 11 mm.

Hab. Kuching.

Face closely, strongly punctured, its centre with a smooth keel; the clypeus less strongly and closely punctured; its apex raised, smooth, the sides sparsely punctured. Front and vertex smooth, the former keeled down the middle. Middle lobes of mesonotum punctured in the middle; the scutellum more sparsely punctured; the depression with 3 stout keels. On the centre of the median segment at the base are 2 straight irregular bands of reticulations, forming an elongated area, from the apex of which an irregular keel runs to the spiracles and another, longer curved one down the apical slope, the parts between and outside being irregularly striated; the part before and behind the spiracles is irregularly, strongly striated; the metapleuræ below the keel bear round, not very deep, punctures. Upper part of mesopleuræ smooth, the lower and the sternum closely punctured. Body and legs covered with pale hair; the hair on the tibiæ and tarsi is denser; the calcaria black.

The transverse median nervure is received shortly behind the transverse basal and the recurrent nervure shortly beyond the transverse cubital, not interstitial as in the type *S. nigricans*.

*Phalgea*, gen. nov.

Areolet absent; 2nd recurrent nervure received beyond the transverse cubitus; disco-cubitus with the stump of a nervure; transverse median nervure placed behind transverse basal;

transverse median nervure in hind wing broken above the middle; cubital nervure in fore wing dilated at base. Four front claws cleft before the middle. Hind legs stout and greatly lengthened. Apex of clypeus roundly incised in the middle, the sides tooth-like. First abdominal segment distinctly narrowed, clearly separated and longer than the 2nd and 3rd united; ovipositor not much longer than the abdomen. Apical slope of metanotum smooth and bounded by a keel. Basal joint of hind tarsi as long as the following two united.

The wings are very large, longer than the body; the antennæ, as usual, short; mesonotum deeply trilobate; hinder tibiæ not twice the length of the femora; post-scutellum at base bifoveate, on the outerside bounded by stout keels.

Comes nearest to *Arotes*.

*Phalgea lutea*, sp. nov.

Luteous, the flagellum of antennæ fuscous, darker towards the apex; wings yellowish-hyaline, the nervures and stigma luteous; hinder tarsi and apex of tibiæ blackish; the lower apex of the fore, and the apex of the hinder wings smoky, with a violaceous tint. ♀.

Length 13; terebra 5-6 mm.

Hab. Matang.

Face and clypeus closely and strongly punctured; the vertex sparsely behind the ocelli and at the eyes; the front deeply excavated; a shining furrow in the middle, the sides striated. Mesonotum and scutellum closely punctured; the apex of the middle lobe irregularly transversely striated. Metanotum smooth, punctured behind the keel. Pleuræ closely punctured, the base of the pro- and the upper part of the meso- smooth; the apical half of the meta- furrowed in the middle.

CRYPTINA.

*Silsila apicimaculata*, sp. nov.

Black, shining; the face, except at the top and bottom, the clypeus, except above and in the centre at the apex, labrum, inner

orbits, pronotal tubercles, scutellar keels, centre of scutellum broadly, post-scutellum, two large marks on the apical slope of the metanotum, extending on to the pleuræ, tegulæ, tubercles, a square mark on the lower edge of the mesopleuræ in the centre, the narrowed base of the 1st abdominal segment, its apex more narrowly, the apices of the others and the ventral segments from the 1st, yellow. Legs yellow, the femora with a fulvous line, the hinder coxæ below and broadly at the sides, trochanters, apical third of hind femora, base of tibiæ narrowly, their apex more broadly and the apical joint of the tarsi, black; the rest of the tarsi white. Flagellum of antennæ broadly white. Wings hyaline, the stigma and nervures black. ♀.

Length 14; terebra 5 mm.

Hab. Matang. August.

Front and vertex smooth and shining; the former furrowed; face obscurely shagreened. Mandibles yellow, black at the apex. Palpi yellow. The tubercles on the pronotum are large, longish, their apex with a longer, less rounded slope than the base. Pro- and mesothorax smooth and shining; the middle lobe of mesonotum broadly rounded at the apex, the furrow with a keel in the centre; it is widely separated from the apical depression which is large and deep. Base of metanotum smooth, the rest closely, transversely striated; the sides on the top of the apical slope are slightly tuberculated; the apical slope is straight and obliquely sloped. Propleuræ, except below with stout, curved keels; the mesopleuræ below the tubercles and the lower half at the base, and the lower part at the apex obscurely striated; the metapleuræ closely, coarsely obliquely striated. Mesopleurl furrow stoutly striated. Sternum thickly covered with white hair. Abdomen smooth and shining; the 2nd and 3rd segments opaque, closely punctured, except on the base of the 2nd which is smooth, and the sides at the base which are aciculated.

*Silsila* (described Manchr. Memoirs, 1903, No. 14, p. 1) has the appearance of a *Friona* which it also resembles in the striated metanotum, but it belongs to the *Mesostenini*, while *Friona* belongs to the *Cryptini*. It is easily known by the

small, longish, narrow areolet, tuberculated pronotum and long narrow petiole.

*Friona ruficoxis*, sp. nov.

Black, a broad band on the centre of the antennæ, a line on the post-scutellum, a large mark, rounded behind, transverse at the apex at the hind wings, a line down the centre of the apical slope of the metanotum and a broader one across its apex, and the apical two segments of the abdomen, white. Four front legs pale fulvous, the coxæ more rufous in tint, the anterior black above; the hind coxæ bright rufous, the trochanters black, the femora rufous; black above, the tibiæ black, the tarsi white, narrowly black at the base. Wings hyaline, the stigma and nervures black. ♂.

Length 9 mm.

Hab. Kuching. June.

There are some stout keels below and at the sides of the ocelli; face rugose, clypeus shining, aciculated. Mandibles rufous before the apex. Palpi white. Mesonotum shining, smooth, the apical central depression coarsely transversely striated. Base of metanotum to the keel smooth, the rest transversely striated. The top of the pro- and mesopleuræ smooth, the rest longitudinally striated; the metapleuræ irregularly obliquely striated.

*Friona pleuralis*, sp. nov

Black; the face, clypeus, labrum, mandibles, except at the apex, palpi, the inner eye orbits narrowly, the lower half of the outer, the malar space, the pleuræ, except for an irregular mark on the top of the propleuræ, the median segment except the base and a broad band on the sides of the metanotum, extending near to the top of the apical slope and narrow bands on the apices of the abdominal segments, yellow. Four front legs and hind coxæ yellow; the hind femora, trochanters and tibiæ black, their tarsi white. Wings clear hyaline, the nervures and stigma black. Under side of the 1st and joints 5 to 14 of antennæ white. ♀.

Length 13-14; terebra 4 mm.

Hab. Kuching.

Face rugosely punctured, almost striated, the clypeus smooth, with only a few scattered punctures; the striæ on the front irregular. Apex of central lobe of mesonotum irregularly rugose; the scutellar keels and the sides and apex of scutellum narrowly yellow. Striation on pleuræ and metanotum close and strong; on the apical slope of the metanotum it is oblique above, transverse below and with the centre smooth.

This species differs from the others by the pleuræ and sternum being yellow, not black.

*Friona varipes*, Cam.

Mr. Shelford sends from Singapore a ♀ of this species which wants the white mark on the mesopleuræ; the line on the metanotum commences in the middle, not at the transverse keel and the apical 2 joints of the hind tarsi are black. The species is probably variable in colouration. The 2 white marks under the antennæ may be very small, and the colouration of the legs varies.

*Lactolus plagiatus*, sp. nov.

Black, a band on the antennæ, the apical 3 segments of the abdomen above and the hind tarsi, except at the base, white; the 4 front legs pale rufous, their tarsi fuscous, the front coxæ for the greater part black, the middle black at the base, the hinder rufous; the pro- and mesopleuræ striated in the middle, the meta- more closely and regularly on the lower half; the metanotum and the metapleuræ for the greater part brownish. Wings hyaline, the stigma and nervures black. ♂.

Length 11-12 mm.

Hab. Kuching. May.

Front with broken, stout, irregular keels. Face in the centre coarsely rugosely punctured, the sides irregularly transversely striated and bordered by a longitudinal keel. Pro- and mesonotum smooth; the meta- from shortly behind the keel, not

very strongly transversely striated, the striæ on the metapleuræ are stronger and commence shortly behind the middle. Areolet square, hardly narrowed behind; the recurrent nervure received in the middle.

This species may be known by the weak striation on the pleuræ and metanotum, by the middle lobe of the metanotum being smooth, not reticulated, and by the brownish splashes on the thorax.

*Lactolus reticulatus*, sp. nov.

Black, labrum, palpi, a broad band on the middle of the antennæ, post-scutellum, the apical 3 segments of the abdomen above, base of first, a curved mark on the apical slope of the metanotum, and the hind tarsi, except narrowly at the base, white; 4 front legs and hind coxæ, rufous, the 4 front tarsi fuscous; wings hyaline, the stigma and nervures black. ♀.

Length 10; terebra 4 mm.

Hab. Kuching. May.

The centre and the lower part of the front with some irregular keels; the face irregularly rugose; the clypeus smooth. Pro- and mesonotum smooth and shining, the centre of the latter at the apex with a band of twisted striæ; the base of metanotum entirely smooth and shining; the rest closely transversely striated. Apex of pronotum, punctured closely above, the rest, except below, striated. Mesonotum closely, irregularly longitudinally striated, except in the middle; the metapleuræ closely rugosely striated. Areolet longer than broad, the nervures not converging below.

This species, in colouration, agrees closely with *L. basimacula*, but that is a larger and stouter species, its areolet is square, not broader than long and it is narrowed behind, its scutellum and hind femora and tibiæ are brownish and there is a large white mark behind the hind wings.

*Lactolus basimacula*, sp. nov.

Black, labrum, palpi, a broad band on the antennæ, post-scutellum, a broad band, dilated above, on the apical slope of

the metanotum, the apical half of the 6th abdominal segment above and the 7th and 8th entirely, white; 4 front legs bright red, their tarsi blackish; hind coxæ bright red, the trochanters, femora, tibiæ and base of tarsi narrowly, black; the rest of tarsi white. Wings hyaline, the nervures and stigma black; areolet longer than broad, narrowed below. ♀.

Length 17; terebra 5 mm.

Hab. Kuching.

Face coarsely, closely, irregularly reticulated; clypeus shining, minutely sparsely, punctured; the ocellar region and centre of front with some stout irregular striæ, the outer curved. Centre of mandibles finely striated, the teeth brownish. Pro- and mesonotum smooth and shining, the scutellum brownish; the base of metanotum smooth, the sides, at the apex, obscurely striated; the rest closely, strongly transversely striated. The apex and central hollow of propleuræ strongly striated; the upper half of mesopleuræ strongly longitudinally striated, the striæ distinctly separated, the lower more closely striated and with the striæ running into reticulations; the meta- closely, strongly, irregularly striated.

The depressions and sutures of the thorax are striated; the apex of the middle lobe of the mesonotum is transversely striated; the scutellum is brownish and there is a broad white mark behind the hind wings.

*Lactolus maculiscutis*, sp. nov.

Length 16 mm. ♂.

Hab. Kuching.

Agrees closely in size and colouration with *L. basimacula*; may be known by the face, clypeus and base of mandibles being white; by the scutellum being lined laterally with white, by the areolet being longer and narrower; and by the post-petiole being tuberculated at the base.

Black, face, clypeus, labrum, mandibles, except at the apex, palpi, tubercles, sides of scutellum narrowly, a mark at the sides of the post-scutellum, the apex of metanotum—the mark prolonged in the middle behind—and the apical segment

of the abdomen, white. Four front legs red, the middle femora infuscated, their tarsi black; the hind legs black, the coxæ bright red, tarsi white; except at the base. Wings hyaline, the nervures and stigma black. ♂.

Face coarsely rugose, obscurely striated in the middle, the clypeus sparsely punctured. Front in centre stoutly striated. Basal depression of metanotum with 3 stout, longitudinal keels; behind this irregularly obliquely striated and rugose; the rest of metanotum rugose, the base with oblique, converging striæ, the centre at the apex irregularly transversely striated. Apex and central depression of propleuræ stoutly striated; the meso- except at the apex, closely, rugosely, longitudinally, the meta- closely, rugosely, striated.

The middle of the mesonotum at the end of the central lobe, is irregularly reticulated; the scutellar depression is deep, narrow and striated in the middle. Median segment covered with white pubescence. Petiole brownish and dilated at the base; hind tibiæ and tarsi densely covered with dark, short pubescence.

This species differs from the others in having the alar areolet longer and narrower, the scutellum flatter and the abdominal petiole tuberculate at the base and shortly beyond the middle. It differs also from the known males in having the face and clypeus white.

*Pharzites*, gen. nov.

This genus is closely related to *Lactolus* from which it may be separated by the under noted characters:—

Cubital nervure in hind wings broken above the middle; apex of clypeus obliquely, semicircularly depressed, labrum large, long, narrowed towards the apex. *Pharzites.*

Cubital nervure in hind wings broken distinctly below the middle; clypeus not depressed in front, labrum indistinct. *Lactolus*, Cam.

The malar space is slightly larger; the tarsi are spinose; the median segment is not so distinctly or regularly striated; the antennæ are slender, broadly ringed with white and closely pilose, especially towards the apex; the transverse median nervure is received distinctly behind the transverse basal; the

colouration is identical with *Lactolus* except that the hinder tarsi are not ringed with white. The identical colouration of these 2 genera and *Buodias* is noteworthy. The latter is separated from both by the spined median segment.

*Pharzites nigritarsis*, sp. nov.

Black ; a ring on the flagellum of the antennæ, the apices of the basal three segments of the abdomen and the apical half of the penultimate and the last above, white. Legs black ; the fore trochanters, femora and tibiæ testaceous ; the middle trochanters pale ; the hinder coxæ and trochanters bright red. Wings hyaline, the nervures and stigma black. ♂.

Length 11 mm.

Hab. Kuching.

Face irregularly closely striated ; the upper part of the clypeus more irregularly longitudinally striated, the apical depression smooth. Mandibles dark red in the middle ; the long palpi white. Mesonotum opaque ; the scutellum more shining and distinctly punctured. Base of metanotum sparsely punctured, the rest finely rugose, almost transversely striated, in the middle. Mesopleuræ finely punctured, a curved striated furrow in the middle behind. Metapleuræ more closely punctured.

*Buodias maculipennis*, sp. nov.

Black ; the 4 front legs rufous ; the hinder coxæ, trochanters and femora of a paler rufous colour, their tibiæ black, the tarsi white, except the apical joint ; the palpi and the middle of flagellum of antennæ beneath white ; wings hyaline, the nervures and stigma black ; there is a fuscous cloud extending from the radius to the discoidal nervure and from the base of the radius to the recurrent nervure. First and second segments of the abdomen narrowly brownish at the apex, the apical two white above. ♀.

Length 11-12 mm.

Hab. Singapore.

Face opaque, aciculated, longitudinally striated above ; the clypeus smooth and shining. Front strongly longitudinally

and obliquely striated; vertex strongly aciculated. Pro- and mesonotum smooth and shining; the apex of scutellum obscure brownish; the pleuræ opaque, strongly aciculated. Median segment closely, strongly striated; the basal part of the metanotum longitudinally, the apical slope transversely striated, the part behind the keel more finely than the rest and with the area smooth; the apical slope more coarsely, closely transversely; the pleuræ closely, longitudinally striated. All the sutures and depressions are striated. Abdomen smooth, the 2nd and 3rd segments aciculated. Metanotal spines long, fully twice in length the thickness at the base; the basal area clearly defined, in length longer than the width at the base; it becomes gradually narrowed towards the apex.

*Buodias rufipes*, sp. nov.

Black, a band on the middle of the antennæ, palpi and the apical 2 segments of the abdomen, white; the legs rufous; wings clear hyaline, the nervures and stigma black. ♀.

Length 8-9 mm., terebra 3 mm.

Hab. Kuching.

Face and clypeus opaque, alutaceous, as are also the front and vertex, but not so coarsely; the ocellar region and the centre of the front striated; the latter keeled down the centre. Mesonotum shining, closely, minutely aciculated; the upper part of the propleuræ closely, strongly, and the greater part of the mesopleuræ closely, strongly, irregularly striated. Median segment closely, irregularly striated, the pleuræ more closely and regularly than the rest; the part of the metanotum behind the keel smooth at the base, the rest closely, finely striated. Metanotal spines short and thick. Abdomen smooth and shining; the 5th segment is white at the apex above. Areolet square, its apical nervure faint.

*Mesostenus multimaculatus*, sp. nov.

Black, the face, clypeus, except the apex broadly in the centre, labrum, mandibles, except at the apex, the orbits except the outer near the top; apex of pronotum broadly, a mark on

the apex of the middle lobe of mesonotum, longer than broad, transverse at the base, rounded at apex, scutellum, except at the apex; a longish mark, transverse at base and narrowed towards the apex on the base of the metanotum and reaching to the keel; a broad line on the basal half of the apical slope, its apex more broadly, the base of the pronotum, a small mark on the lower part of the propleuræ, tubercles, a conical mark on the base of the mesopleuræ in the centre, a mark, rounded at the base, on the upper and a similar mark on the lower part of the mesopleuræ, the greater part of the outer edge of the mesosternum, 2 larger marks on its centre, an oval mark below the hind wings above the spiracles and a large mark, roundly narrowed below near the apex of the metapleuræ in the middle and the apices of all the abdominal segments, yellow. Legs pallid fulvous, the coxæ and trochanters paler, the 4 front femora and tibiæ lined above with black; their coxæ marked with black before and behind; the hind coxæ black, largely yellow at the base above and at the apex below; the trochanters black above, the apical fourth of femora, base of tibiæ narrowly, their apical fourth and the last joint of tarsi, black, the rest of tarsi white.

Hab. Kuching.

*Mesostenus maculiscutis*, sp. nov.

Black, the face (except for a black mark in the centre) clypeus, labrum, the inner orbits (the line continued shortly beyond the eyes) the outer from near the top, the line becoming gradually wider below, the malar space, a mark on the centre of the pronotum, a mark on the mesonotum, transverse at the base, rounded and narrowed towards the apex, tegulæ, scutellar keels, a mark on the base, apex and sides of scutellum, postscutellum, a broad straight line down the centre of the metanotum, united to a transverse one at its apex of about the same width, a curved mark on the lower part of the propleuræ, tubercles, a broad line, dilated upwards at the base and apex and united before the apex to a large mark on the mesosternum and a large mark on the middle of the metapleuræ, yellow. The 6 basal segments of the abdomen banded with yellow at the apex; the 3 apical bands not united to the yellow on the ventral surface, the apical two-thirds of the last segments broadly on

the sides and narrowly on the apex, the basal ventral segments at the apex and the apical entirely, yellow. Four front legs yellow, the femora and tibiæ in the middle above, their tarsi, the hind coxæ broadly at the base below, at the apex above, the apical joint of the hinder trochanters, apex of femora, of tarsi more broadly and their base narrowly, black; the rest yellow, the yellow on the femora and tibiæ with a rufous tinge. Wings hyaline, the stigma and nervures black. ♀.

Length 18 mm.; terebra 9 mm.

Hab. Kuching.

Front irregularly reticulated in the centre, the sides longitudinally striated. Face closely, the clypeus more sparsely punctured. Mesonotum and base of metanotum closely and distinctly; the scutellum more strongly, but not so closely, punctured; the metanotum, from the basal keel, closely striated, the striæ curved. Upper part of propleuræ smooth, the rest closely striated; mesopleuræ closely punctured, the base, stoutly, obliquely striated; meta- closely obliquely striated. Back of abdomen closely punctured; the punctures on the 1st segment more widely separated.

*Cratocryptus*, gen. nov.

Median segment short, reticulated, its sides dentate, its base with a central area, the spiracles small, oval. Head as wide as the thorax, temples very short, obliquely narrowed; eyes large, parallel, malar space small. Apex of clypeus rounded, the large labrum dilated broadly in the middle. Mandibles with 2 equal teeth. Areolet small, square, the apical nervure faint; transverse median nervure received shortly behind the transverse basal; disco-cubital nervure roundly curved not broken by a stump; transverse median nervure in hind wings broken distinctly below the middle. Post-petiole broad, the petiole becoming gradually wider. Antennæ ringed with white, slender; the 1st joint of flagellum longer than the 2nd.

There is only 1 keel on the metanotum; there is none on the metapleuræ. Parapsidal furrows distinct on the basal half. Thorax about 3 times longer than wide; its apex almost

tranverse and with a steep slope. Legs stout, basal joint of front tarsi shorter than the tibiæ; the claws of moderate size; last joint of hind tarsi as long as the 3rd. Spiracles wider from each other than to the apex of the petiole, owing to its great width.

Comes nearest to the American genera *Christolia* and *Mesostenoideus*, but it cannot well be referred to either. Of the Oriental genera it comes nearest to *Skeatia*. The two may be distinguished thus.

Areolet square; apex of median segment only slightly oblique; labrum large, distinctly projecting; petiole not becoming gradually wider towards the apex. *Cratocryptus.*

Areolet narrow, distinctly longer than wide; apex of median segment with a distinct, oblique slope; labrum hidden; petiole becoming gradually wider towards the apex. *Skeatia.*

*Cratocryptus maculiceps*, sp. nov.

Black; the clypeus, except at the apex, the inner orbits—the line roundly narrowed opposite the antennæ,—an oblique, somewhat triangular, mark below the eyes, a line on the pronotum, not reaching to the base, tegulæ, scutellum, its keels narrowly, the sides of the median segment broadly—half on the metanotum, half on the pleuræ and dilated on the inner side above—the base of the propleuræ, a mark below the hind wings, rounded in front, transverse behind, a broad band on the 1st and 2nd segments of the abdomen, a narrow band on the 5th and the apical two entirely, yellow. Four front legs fulvous, the hinder coxæ, trochanters and femora of a darker red colour, their tibiæ and tarsi much paler, with the apex of the hinder tibiæ and the apical joint of the tarsi, black. Wings hyaline, the nervures and stigma black, the areolet square, its apical nervure faint. ♀.

Length nearly 8; terebra nearly 2 mm.

Hab. Kuching. June.

Basal joints of antennæ brownish beneath, joints 6-14 white. Centre of face raised, rugosely punctured, the sides sparsely punctured. Lower part of vertex at the ocelli and upper part of front closely obliquely, the lower part more

closely and finely transversely striated. Mesonotum closely, distinctly and finely punctured, the sides and apex obscurely striated. Scutellar depression with 4 stout keels; the scutellum almost impunctate. Base of metanotum closely finely rugose and with a few keels at the sides of the area; the rest is closely reticulated, the apical slope in the middle finely rugose. Propleuræ behind the keel strongly, obliquely striated; mesopleuræ closely, rugosely reticulated, less closely at the top where there are a few oblique and curved striæ; petiole smooth and shining; the 2nd and 3rd segments closely punctured; gastrocoeli obscurely striated.

*Skeatia balteata*, sp. nov.

Black; the face, clypeus, mandibles, eye orbits, a line on the centre of the pronotum, a square mark on the apex of the middle lobe of the pronotum, scutellums, the sides, including the teeth broadly, and the top of the apical slope of the metanotum, tubercles, a mark, longer than broad, above the apex of the mesopleuræ, a line below on its apical half and a similar line on the sides of the basal half of the mesosternum, an oblique mark under the hind wings and a large mark, becoming gradually wider below, on the centre of the mesosternum and the apices of all the abdominal segments, yellow. Legs fulvous, the middle tarsi blackish, the hinder white; the outer side of the hind coxæ, hind trochanters, base and apex of femora, the tibiæ at the base narrowly and at the apex more widely, black. Wings hyaline, the stigma and nervures black. Flagellum of antennæ broadly white. ♀.

Length 11-12 mm.

Hab. Singapore.

Face sparsely and strongly punctured, its centre projecting. Front and vertex smooth. Mesonotum opaque, closely and distinctly punctured; the middle of the central lobe shining; scutellums smooth. Metanotal area distinctly defined, moderately large, its apex about half the length of the base; the rest of the base finely rugose, depressed near the area; the remainder of the metanotum closely reticulated; the apical slope more

strongly than the middle; the teeth are large, about 3 times longer than thick at the base. Propleuræ stoutly striated; the meso- closely rugosely punctured, except at the apex where it is shining. Second and third segments of abdomen opaque, the others smooth and shining.

Is not unlike *S. varipes*, but that is larger, has a large irregular mark on the lower part of the mesopleuræ, the mesosternum yellow, and the 4 front femora are lined with black above.

*Vagenatha armata*, sp. nov.

Black, the face, clypeus, the inner orbits, the outer from shortly below the middle, the malar space, mandibles, palpi, the projecting outer angles of the pronotum, tegulæ, scutellum, a mark on post-scutellum, the sides, including the spines, of the apical slope of the median segment, the lower edge of the propleuræ, tubercles, an oval mark on the lower part of the mesopleuræ, near the base, a mark under the hind wings and the apices of all the abdominal segments broadly, yellow. Four front legs yellow; the hinder coxæ and basal joint of trochanters, the apical third of femora, and the apical fourth of tibiæ, black; there is a large mark, obliquely narrowed at the apex, on the top of the coxæ; the yellow on the femora has an orange tint. Wings hyaline, the stigma and nervures black. ♀.

Length 10 mm.

Hab. Kuching. January.

Flagellum of antennæ broadly yellow. Front broadly in the centre strongly, obliquely striated, the striæ distinctly separated. Face and clypeus strongly punctured, the latter not so closely as the face. Mesonotum closely rugosely punctured; scutellum strongly punctured, the punctures clearly separated. The area on the base of the metanotum triangular; the part behind the keel is stoutly, irregularly striated, at the base irregularly, strongly punctured; the rest stoutly reticulated, the apical slope much more closely and regularly than the upper part. Propleuræ stoutly, obliquely and closely striated; their bases bordered by a stout, straight keel; mesopleuræ stoutly

striated, the striæ more irregularly and widely separated on the apex below; the lower part at the base closely punctured; metapleuræ strongly, closely rugosely punctured, its lower edge with a distinct border. Petiole shining, the post-petiole punctured, but not closely or strongly, the 2nd and 3rd segments opaque closely, distinctly punctured. This species may be separated from *V. spinosa* as follows:—

Lower outer orbits yellow, not densely pilose; the metanotal spines not united by a yellow line, the face yellow. *Armata.*

Lower outer orbits and face black; the cheeks densely pilose; the metanotal spines united by a curved yellow line, the face black. *Spinosa.*

*Coesula*, gen. nov.

Transverse median nervure in hind wings broken below the middle; median nervure at the base roundly curved towards the costa. Areolet minute, open at the apex. Cubito-disco nervure-angled in the middle, and with a minute stump of a nervure. Transverse median nervure interstitial. Median segment with 2 transverse keels; a longitudinal furrow between them; its spiracles small, oval, not much longer than broad. Antennæ longer than the body, thickened and broadly ringed with white in the middle; the basal joints of flagellum greatly elongated; the basal two equal in length. Clypeus roundly convex; its sides and apex depressed; malar space almost obsolete; temples very short. First abdominal segment as long as the 2nd, broad at the base, becoming gradually wider towards the apex; not much curved, not bent or elbowed; the segment banded with white at the apex; ovipositor short.

The median segment is short and has a somewhat steep rounded slope on the apex; its sides finely striated; the areola is only defined at the apex; on the base is a closely striated depression; its apex is irregularly rugosely striated; the basal keel extends to the mesonotum. Thorax fully 3 times longer than wide; its sutures moderately deep. Claws slender, longish; the last joint of hind tarsi distinctly shorter than the 3rd. Head wider than the thorax. Spiracles of 1st abdominal segment closer to each other than to the apex of the segment.

This genus is referred to the *Mesostenini* from its small almost punctiform areolet and from its more thickened antennæ.

Comes nearest to *Mesostenus*=*Stenarœus*, Thoms.; it is much more slenderly built; the disco-cubital nervure is angled and broken by a stump; the median nervure in hind wings not straight, but roundly curved, the temples much shorter, and the clypeus much more convex and roundly separated.

*Cœsula fulvipes*, sp. nov.

Black, the base of the mandibles, an oblique mark on the hinder part of the vertex close to the eyes, a mark on the middle lobe of the mesonotum at the apex, longer than broad, rounded at the apex, transverse behind, scutellum, except at the base, a longish spot on either side of the central furrow on the metanotum, its apex and a large irregular mark, longer than broad, on the sides, the apices of the 4 basal segments of the abdomen and the 6th and 7th broadly, white. Legs bright fulvous; the middle tarsi blackish, the posterior white, black at the extreme base. Antennæ longer than the body, the scape rufous below; the 7th to 15th clear white below. Wings hyaline; the stigma and nervures black. ♀.

Length 10 mm.; terebra nearly 2 mm.

Hab. Kuching. April.

Face finely, closely transversely rugose; the rest smooth and shining, the front with a broad, shallow furrow. Thorax shining; the pleuræ finely, closely longitudinally striated; the pro- smooth above, irregularly striated below; the apex of the metanotum with some longitudinal striæ below the keel and some transverse ones at the apex. Hinder knees black; the calcaria blackish.

*Dinocryptus*, gen. nov.

Entirely black, the wings uniformly violaceous. Transverse basal nervure almost interstitial. Disco-cubital nervure roundly curved, not broken by a stump of a nervure. Trans-

verse median nervure in hind wings broken almost in the middle. Median segment large, without transverse keels; its apex with 2 tubercles and with an oblique, straight slope; the spiracles elongate. Petiole longer than the 2nd segment, its base distinctly narrowed, the rest of equal width, roundly curved in the middle. Legs stout, longish; the basal joint of all the tarsi longer than the other joints united; fore tibiæ shorter than the tarsi, stouter than the others and distinctly narrowed at the base. Temples moderately wide, rounded; the occiput margined, slightly, roundly incised. Parapsidal furrows distinct to shortly beyond the middle. Apex of clypus projecting in the middle, the centre of the projection roundly incised, with the sides rounded; the apex below this is depressed, clearly separated and transverse. Metapleuræ keel broad and dilated at the base, narrowed at the apex.

Comes near to *Cryptoidens*, Ashmead. The toothed clypeus, the absence of transverse keels on the metanotum, the dark violaceous wings and the long metatarsus are 4 points which make the genus easily recognised.

*Dinocryptus niger*, sp. nov.

Black; the inner eye orbits white in the middle; the wings uniformly dark fuscous-violaceous, with violet and purple tints and highly iridescent, the stigma and nervures black. ♀.

Length 20; terebra 12 mm.

Hab. Kuching. April.

Head closely and distinctly punctured; the face roundly, broadly dilated in the middle; inner orbits distinctly margined. Thorax closely and distinctly punctured, except on the propleuræ which has the base smooth, the apex finely punctured. The apical segment of the abdomen is smooth and shining; depressed in the middle at the base; the others are closely punctured, the punctuation becoming finer towards the apical segments. The 2nd segment is raised at the base, this part being bounded by shallow, oblique furrows; there are shallow transverse furrows on the middle segments; the penultimate is as long as the preceding 3 united. Tarsi closely and shortly spined.

*Melcha hyalinis*, sp. nov.

Black, shining; the median segment, except on the base of the metanotum, the apex of the mesopleuræ, the mesosternum, post-scutellum and the base of the petiole, red; the face, clypeus, base of mandibles, apex of petiole and the apex of the 2nd abdominal segment from shortly behind the middle, pale yellow; the 4 front legs pale rufous, the hind coxæ rufous, blackish above, the trochanters and femora blackish-fuscous, the femora dull rufous below, the tibiæ blackish, their basal fourth clear white; the basal and apical joints of the tarsi black, the others clear white. Antennæ fuscous, darker towards the apex, the scape yellowish, tinged with rufous. Wings hyaline, the stigma and nervures black. ♂.

Length 6 mm.

Hab. Kuching.

Smooth and shining. Area on metanotum aciculated; the part between the 2 keels obscurely striated in the middle; the apical slope with some curved striæ above. Hind tarsi and tibiæ minutely spinose.

*Melcha reticulata*, sp. nov.

Black; the labrum, palpi, tegulæ, the 4 front coxæ and trochanters, the basal fourth of the hind tibiæ, the apex of the 1st joint of the hind tarsi and their 2nd 3rd and 4th joints, white; the apex of the metanotum, the greater part of the metapleuræ and the petiole pale rufous; the base of the post-petiole black, its apex and the apices of the 2nd and 3rd segments broadly, white. Antennæ black; the scape and the base of the flagellum dark testaceous. Wings hyaline, the stigma and nervures black.

Length 7 mm.

Hab. Kuching. March.

Smooth and shining; the face above obscurely punctured; the metanotum behind the keel reticulated, the sides striated; the reticulations are widest at the base; the basal central area

is greatly widened at the base, with the sides oblique; at the apex the sides are straight. Pro- and mesopleuræ smooth and shining; the meta- aciculated.

*Melcha albomaculata*, sp. nov.

Black; the median segment, scutellum, post-scutellum and the parts at their sides, the mesopleuræ, except for a triangular mark on the upper basal corner, and the meso- and meta-sternum, rufous; the apex of the post-petiole rufous, tinged with yellow; more than the apical third of the 2nd abdominal segment, the penultimate above and the apical entirely, white. Four front legs and the hinder coxæ rufous; the rest of the hind legs black; a band on the base of the tibiæ, the apex of the 1st and the whole of the 2nd and 3rd joints, white. 6th to 11th joints of antennæ white, except above. Wings hyaline, the nervures and stigma black. ♀.

Length 9 mm; terebra 2 mm.

Hab. Kuching.

Antennæ stout, the flagellum slightly brownish. Face rugosely punctured, the sides with irregular, longitudinal striæ Clypeus smooth and shining. Front and vertex opaque; the front with a stout keel running down from the ocelli; the part on either side of the keel irregularly transversely striated. There are 5 stout keels in the basal scutellar depression. Post-scutellum depressed, the depression rounded behind and in the front, the basal bounding keel produced roundly backwards in the centre. Base of median segment smooth, the keels of the area thin; the part beyond the keel closely regosely punctured, almost reticulated; the apical slope coarsely transversely reticulated, more coarsely on the sides than on the centre; the teeth longish. The apex and centre of the propleuræ longitudinally striated; the striæ becoming gradually narrowed from the apex to the base; the basal half of the meso- more irregularly and widely striated to near the bottom; the meta- closely and strongly obliquely striated. Mesopleural furrow crenulated.

*Hadrocryptus striatus*, sp. nov.

Black, the apex of the clypeus, labrum, palpi, the 5th to 14th joints of the antennæ, apex of scutellum, post-scutellum, a mark on the top of the apical slope of the metanotum, rounded and narrowed above, transverse below, the apices of the basal 4 abdominal segments, the basal third of the 1st, the sides of the 5th, the penultimate almost entirely and the greater part of the ventral segments, white. Legs white, all the coxæ and trochanters, the hind femora, basal of hind femora slightly, the apex more broadly and the apex of the 5th joint of the hind tarsi and the apical 2 joints of the 4 anterior, black; the 4 front femora dark fuscous. Wings clear hyaline, the stigma fuscous the nervures darker. ♀.

Length 12 mm; terebra 3 mm.

Hab. Kuching.

Face irregularly, longitudinally striated; the tubercle smooth, rounded, longer than broad, dull white. Clypeus sparsely punctured, shining; the lateral depression irregularly striated and bounded on the outerside by the usual keel. Front closely, longitudinal striated above, furrowed down the centre. Mesonotum, except at the apex, closely, transversely, irregularly striated. Scutellums smooth, metanotum at the base obliquely striated and punctured; the rest strongly distinctly transversely striated; the apex has an oblique slope and has a round tubercle or short tooth on the sides above. Propleuræ punctured above, the rest strongly striated; the meso- closely reticulated, the apex below and the base above striated; the meta- more closely reticulated. Abdomen smooth and shining. Tarsi spinose.

The areolet is large, almost square; the transverse median nervure is almost interstitial; the transverse cubital nervure in the hind wings broken shortly below the middle. Coxæ thickly covered with white pubescence, the hinder closely punctured.

*Colyanta varicornis*, sp. nov.

Luteous; the hind femora, apical third of tibiæ and hind tarsi, black; the base of antennæ luteous, the middle whitish-

yellow, the apex black; wings hyaline, the base with a slight fulvous tinge, the costa and stigma testaceous, nervures darker coloured. ♀.

Length 12; terebra 2 mm.

Hab. Kuching.

Head pale yellow; the vertex obscurely, closely punctured, the front impunctate; the face strongly, but not closely, punctured; the clypeus smooth, obscurely punctured above: its apex depressed in the middle. Mesonotum of a dark reddish-yellow colour, closely punctured. Scutellum with the punctures more clearly separated. Central area of metanotum closely, strongly transversely striated, much more strongly above than below; the lateral basal areæ are closely, strongly transversely striated; the upper posterior strongly obliquely striated above, below irregularly reticulated. Upper part of propleuræ with stout curved striæ, the lower longitudinally striated; upper part of meso- closely punctured, the middle striated; the apex stoutly crenulated; the meta- closely striated, the striæ more or less curved; below these is a stout keel. Abdomen smooth and shining.

The basal and apical abscissæ of the basal keels on the metanotum are straight, not rounded and are obliquely sloped; the disco-cubital nervure is broadly, roundly curved, not angled. The species comes near to *annulicornis* from which it may be known by the smaller size, by the apex only of the hinder tibiæ being black and by the base of the flagellum not being black.

*Colganta annulicornis*, sp. nov.

Luteous, the ocellar region black, the mark gradually, obliquely narrowed towards the apex, the antennal flagellum black, the 6th to 13th joints white above; the apical third of hind femora, and the hind tibiæ and tarsi, black; wings hyaline, the base with a yellowish tinge, the stigma dark testaceous, the nervures black. ♀.

Length 17 mm.; terebra 5 mm.

Hab. Kuching.

Sides of face strongly its sides more finely and the top of clypeus less strongly punctured; the clypeus in the centre at the apex depressed, the depression rounded above, transverse below; centre of front closely punctured, more strongly above than below. Mesonotum darker coloured than the rest of the thorax and closely, uniformly and strongly punctured, except at the apex; the scutellum is more strongly punctured. Metanotum behind the keel irregularly reticulated; the keels are stout, irregularly waved on the innerside, and raised there at the base; the posterior median area is depressed and transversely striated, the striæ stronger on the sides; the lateral areæ are irregularly reticulated, the keels being much stronger than in the centre; there are 4 apical areæ; the spiracular region is bounded by stout keels and is strongly striated. Propleuræ behind irregularly striated; the meso- minutely, indistinctly punctured; the meta- rugosely, coarsely punctured. Hind coxæ closely punctured; the tarsi spinose; below they have a rufous tint.

JOPPINI.

*Agarenes*, gen. nov.

♂. Head wider than the thorax: the temples wide, the occiput roundly incised. Scutellum flat, large, its sides keeled. Base of metanotum obliquely, deeply depressed; areola large, slightly longer than broad, rounded behind, transverse in front, widely separated from the base of the segment and without a petiolar area. Areolet narrowed in front, the nervures almost touching there; disco-cubital nervure broken by a stump of a nervure; transverse basal nervure interstitial. Petiole smooth, post-petiole obliquely narrowed at the base; the 2nd and 3rd segments closely punctured; there are 8 segments; the last minute, blunt and with stout, longish cerci; the ventral keel extends to the apex of the 3rd segment. Antennæ shorter than the body, narrowed and serrate at the apex. There is an oblique keel on the propleuræ, and 2 on the lower part of the meta- between the coxæ.

The median segment is regularly areolated, more so than in the typical *Joppini*; the ventral keel is large and is on the 2nd

and 3rd segments only; the 2nd and 3rd segments of the abdomen are minutely punctured, the 2nd striated at the base; tarsi minutely spined.

I unfortunately only know the ♂ of this genus. Like some other Oriental genera it is somewhat intermediate between the *Amblypygi* and the *Joppini*.

*Agarenes cariniscutis*, sp. nov.

Black, shining; the face, clypeus, inner orbits narrowly, the lower two-thirds of the outer, a short narrow line on the apex of the pronotum, tegulæ, sides and apex of scutellum narrowly, post-scutellum, the sides of the apical slope of the metanotum, the narrowed basal part of the petiole, 2 marks on its apex, 2 on the apex of the 2nd and 3rd segments, the apical half of the 6th and the whole of the 7th and 8th, pallid yellow. Four front legs pallid fulvous; the hind coxæ, trochanters and femora rufous, their tibiæ and tarsi black, the former paler at the base behind; calcuria rufous. Wings hyaline, the nervures and stigma black. ♂.

Length 11 mm.

Hab. Kuching.

Face distinctly punctured. Ocelli in front bounded by a curved furrow. Mesonotum minutely punctured, the basal half with 2 longitudinal furrows; scutellum more strongly, but not so closely, punctured. Base of metanotum smooth; the areola irregularly longitudinally striated; the other areæ closely, transversely, strongly striated. Pro- and mesopleuræ indistinctly, the meta- closely and strongly punctured. The 2nd and 3rd abdominal segments closely punctured, striated at the base. Gastracoeli shallow, irregularly striated.

*Druscia*, gen. nov.

Scutellum obliquely raised from the base, its apex with an oblique slope, its top ending in 2 stout teeth. Median segment completely areolated; the areola longer than broad, obliquely narrowed at the base, separated from the base of the segment by an area of almost its own length, this area becoming gradu-

ally wider from the apex to the base. Occiput deeply incised; temples wide, obliquely narrowed. Apex of clypeus broadly rounded. Labrum hidden. Abdomen with 8 segments; the 1st long and slender; the last small; sheath of ovipositor long, projecting. Areolet 5-angled, narrowed in front; transverse basal nervure interstitial; the disco-cubital broken by the stump of a nervure. Legs long, the apex of hinder femora reaching to the 5th segment; ventral fold broad, reaching to the base of the ovipositor.

The tarsi are long and spinose; there is a keel between the two hind coxæ and another above it; the antennæ are dilated and compressed before the apex and ringed with white; the abdominal segments closely punctured and not longitudinally striated at the base; face and clypeus flat; the wings fuscous.

This genus is intermediate between the *Joppini* and the *Amblypygi*. In the form of the metathorax it does not differ from the latter and can hardly be looked upon as a typical genus of *Joppini*.

*Druscia* 4-*dentata*, sp. nov.

Black, the sides of the face and clypeus, the line on the latter dilated inwardly at the apex, the lower two-thirds of the inner orbits, the scutellar spines, a line on the lower edge of the scutellum, post-scutellum, an irregular mark on the lower side of the mesopleuræ near the apex, a line on the pronotum at the base, and a spot on its apex in the centre, pale yellow, almost white; the basal 3 segments of the abdomen red; the base of the 1st and the apices of the others white. Legs black, the 4 anterior with their coxæ and trochanters for the greater part and the tibiæ and tarsi in front white; the hinder coxæ red, black at the apex below. Wings fuscous-violaceous, the hinder paler at the base, antennæ black, the 8th to 11th joints white beneath. ♀.

Length 13 mm.

Hab. Kuching. March.

Front, below the ocelli and the face and clypeus obscurely punctured, shining; the face and cheeks thickly covered with silvery pubescence. Pro- and mesothorax obscurely punctured,

scutellum shagreened; the apex of the mesopleuræ obliquely striated below. Basal areæ of metanotum obscurely punctured; the posterior median area closely transversely, the lateral more strongly and less closely striated; the sides and apex of the segment thickly covered with longish white pubescence.

*Cænojoppa*, gen. nov.

Mandibles very broad, largely projecting below the mouth at the base, their apex with 2 large, widely separated teeth; below broadly roundly curved from the base to the apex. Occiput roundly incised. Temples broad. Face flat, not separated from the clypeus, which slightly projects in the middle at the apex. Scutellum raised; its sides and apex on the top with a distinct keel, its apex with an oblique slope. Median segment completely areolated, its base in the middle broadly, obliquely depressed; areola clearly separated from the base of the segment, broad behind, roundly narrowed at the apex; the sides of the segment with short, sharply pointed teeth. Mesosternum with a curved furrow on the sides at the base. Areolet oblique, large, 5-angled; the disco-cubital nervure broken by the stump of a nervure. Legs long, slender; the basal 2 joints of the hinder tarsi as long as the tibiæ. Antennæ longer than the body, stout. Post-petiole broad, obliquely sloped at base and apex; 2nd and 3rd segments minutely closely punctured, not striated; there are 7 segments; the last is longer than the 6th. Head cubital, as long as wide.

I am only acquainted with the ♂ of this genus. Characteristic is the form of the mandibles, which are larger and stouter than usual, the longer hinder tarsi and (for the *Joppini*) the regularly areolated metanotum.

*Cænojoppa longitarsis*, sp. nov.

Black, shining; the face, clypeus, the outer orbits broadly, the inner more narrowly to near the top, a line on the apical half of the pronotum, broader line on the lower edge of the propleuræ, a broader one on the lower part of the mesopleuræ, the tubercles, a broad mark, longer than wide, on the apical half of the metapleuræ, touching and below the keel; a mark, longer

than wide, on the mesonotum, the scutellums, 2 marks, narrowed below on the middle of the metanotum, the narrowed basal part of the petiole and the apices of all the abdominal segments, pale yellow. Four front legs with a fulvous tinge, the hind coxæ black, yellow above, apical joint of trochanters black below, the femora rufous, the tibiæ and tarsi yellow, the former black at the base and apex. Wings clear hyaline, the nervures and stigma black. First segment of abdomen smooth and shining; the 2nd and 3rd closely punctured; gastracoeli large, wide, their middle with a few irregular striæ; the space between shining, aciculated, finely, irregularly striated. Hinder tarsi with the basal 2 joints together longer than the tibiæ.

*Facydes striolata*, sp. nov.

Rufo-luteous; a large mark on the face, becoming gradually wider below, the clypeus except narrowly at the apex, the base of the 2nd abdominal segment in the centre and in front of the gastrocoeli, the base of the 3rd and 4th and the 5th and following segments entirely, black; the legs similarly coloured, the apex of the hind femora, almost the apical half of the tibiæ and the tarsi entirely, black. Wings yellowish-hyaline, the apex from the end of the areolet fuscous-violaceous, the stigma luteous, the nervures darker coloured. Antennæ black, the thickened apical part fuscous. ♀.

Length 16 mm.

Hab. Penrisen, 4500 feet. May.

Face and clypeus closely punctured, the sides of the former broadly, of the latter narrowly, pale yellow; the front and vertex smooth; the ocellar region and the occiput broadly, black. Thorax closely and clearly punctured; the mesonotum darker coloured and thickly covered with fuscous pubescence; the scutellum closely covered with longer, darker hair. Apical slope of metanotum irregularly, coarsely transversely striated; the top of the posterior median area longitudinally striated; its bordering keel smooth and shining. Upper part of propleuræ closely punctured; the meso- less closely, the middle behind almost smooth; the meta- closely and distinctly punctured.

The post-petiole longitudinally striated; the 2nd to 6th segments are closely, regularly longitudinally striated; the apical segments smooth.

*Cratojoppa rufofemorata*, sp. nov.

Black; face, clypeus, orbits—on the outerside narrowly above—a line on the pronotum, scutellum, tubercles, a large mark on the lower half of the mesopleuræ, 2 large marks, obliquely narrowed on the inner side, on the apices of the basal 3 segments of the abdomen and the apices of the others, yellow. Four front legs fulvous, their coxæ and trochanters pale yellow, the tibiæ darker behind; the hind coxæ black, pale yellow above, the trochanters, tibiæ and tarsi pale yellow, the femora rufous, their apical fourth and about the apical half of the tibiæ, black. Wings hyaline, the stigma and nervures black. Antennæ black, the scape beneath and the middle of the flagellum broadly white.

Length 18 mm.

Hab. Tansan.

Face punctured, its face with a large black, spot, which at the apex, is dilated round the top of the clypeus. Front and vertex smooth, impunctate. Basal half of mandibles pale yellow. Mesothorax closely and distinctly punctured and covered thickly with white pubescence. Areola irregularly, strongly punctured on the apical half; the lateral areæ strongly punctured on the outerside; the posterior median strongly transversely striated; the lateral areæ strongly punctured, the punctures clearly separated; the spiracular rugose at the base, the rest closely, strongly obliquely striated. Upper part of propleuræ minutely punctured, the lower at the base smooth and shining, the apex strongly longitudinally striated, the striæ shorter above than below, where they become gradually longer; the mesopleuræ closely punctured, except in the middle behind; the meta- closely and more strongly punctured. Breast and median segment thickly covered with longish white pubescence. Middle of post petiole closely striated, the sides distinctly, but not very closely, punctured; the 2nd to 4th segments closely punctured; the 2nd and 3rd striated at the base; gastrocoeli deep, curved, transverse, smooth.

This species has the areola shorter, wider and projecting only slightly beyond the apex of the lateral areæ and is more distinctly separated at the apex than in *C. robusta* or *C. macu-liceps*; the temples are shorter, the occ ipunot so deeply incised, the fore legs shorter and stouter, with the tarsi shorter and stouter compared with the tibiæ. It cannot be looked upon as a typical *Cratojoppa*.

***Anisobos cincticornis*, Cam. ***

This species is to be referred to my genus *Acanthojoppa*, *The Entomologist*, 1902, p. 109. My description may be usefully supplemented, as the species in this genus appear to be numerous, and difficult to separate from their uniform colouration.

Scutellum flat on the top, its apex with a long perpendicular slope and raised above the post-scutellum; its sides and apex with distinctly raised margins. Median segment completely areolated: the areola wider than long, and separated by more than its own length from the base of the segment, which is depressed in the centre, the depression being bounded by keels laterally. Face and clypeus flat, not separated; the clypeus foveate at the sides above. Labrum projecting. Eyes larger, not converging above or below; the malar space large. Occiput widely and deeply roundly incised. There are 3 distinct areæ on the base of the median segment behind the areola and 3 on the apical slope; the middle areæ being also clearly defined; the sides are bluntly toothed. There is a stout keel above the middle of the propleuræ; the pronotum is broadly margined above laterally; its centre is roundly depressed. Metathoracic spiracles linear. There are 2 short, deep furrows on the base of the mesonotum. These is a shallow furrow on the sides of the mesosternum at the base. Areolet 5-angled, narrowed above; the disco-cubital and the recurrent nervures with the stump of a nervure. Petiole long and slender, the post-petiole not abruptly separated. Gastrocoeli shallow; the ventral keel broad, extending to the apex of the 4th segment; there are 7 segments, the last is as long as the preceding and bluntly pointed. Legs long; the hinder tarsi sparsely spined. Antennæ slender, serrate, broadly

* J. Str. Br. Roy. As. Soc. 1902, 51.

ringed with white; the pedicle is minute, narrowed; the 3rd joint is distinctly longer than the 4th.

ACULEATA.

*Tachytes varipilosa*, sp. nov.

Black, the pubescence on the head pale golden, on the thorax pale fulvous, on the abdomen silvery; wings yellowish-hyaline, the nervures and stigma testaceous. ♀.

Length 13 mm.

Hab. Kuching.

Front, face and clypeus densely covered with golden pubescence; vertex finely rugose, obscurely furrowed down the centre; eyes at the top separated by fully twice the length of the 2nd antennal joint. Thorax alutaceous; the median segment thickly covered with long pale pubescence; the fovea on the apex of the basal slope pyriform; the apical slope with curved, fine striæ; the base is not furrowed; tarsal and tibial spines rufous; costa and stigma dark, the other nervures pale testaceous; tegulæ testaceous, 1st transverse cubital nervure with 3 curves.

Comes near to *T. aurifex*, Sm.; that species is larger, has the scape of antennæ rufous, the apex of clypeus rounded in the centre, and otherwise, may easily be separated by the eyes converging more above, they being there separated by distinctly less than the length of the 5th antennal joint.

*Tachytes aureocincta*, sp. nov.

Black; the hair on the head and thorax fulvous; the abdominal segments banded with golden pubescence; the pygidium with silvery pile and, more sparsely, with long fulvous hair; wings hyaline, suffused with yellow at the base; the tibiæ and tarsi and apex of hinder femora rufo-testaceous. ♀.

Length 14-15 mm.

Hab. Matang.

Clypeus smooth and shining; the centre depressed, transverse; front with, narrow, but distinct, furrow in the centre,

the eyes at the top separated by the length of the 5th antennal joint. Mandibles black, the base covered with pale fulvous pubescence. Metanotum with a shinning V-shaped fovea on the apex of the basal part. The long spur of the hinder tibiæ is fully longer than the metatarsus, which is as long as the following 2 joints united.

Of the Bornean species this is not unlike *T. borneana*, Cam.; that species has the eyes more widely separated above, being there separated by the length of the 5th antennal joint; its wings want the distinct yellowish tinge of *varipilosa*; and otherwise is easily known by the shorter and thicker hinder tarsi of which the metatarsus is not much longer than the 2nd joint and shorter than the long joint of the tibial spines.

*Pompilus flavifrons*, sp. nov.

This species resembles closely *P. cariniscutis*, Cam. from which it may be known as follows:—

Post-scutellum higher than the scutellum, front broadly black in the centre, apex of clypeus transverse, mandibles for the greater part yellow, scape of antennæ black above, apex of hinder tibiæ broadly black. *cariniscutis*, Cam.

Post-scutellum not higher than the scutellum, apex of clypeus broadly curved, mandibles for the greater part black, scape of antennæ yellow, apex of hinder tibiæ not black. *flavifrons*, Cam.

Black, the vertex from near the ocelli, face, clypeus, labrum, outer orbits narrowly from near the top, a broad interrupted band on the apex of the pronotum, scutellum, post-scutellum, and scape of antennæ bright yellow; the apex of femora, tibiæ and tarsi rufo-testaceous; wings hyaline; the apex from near the base of the radial cell smoky, with a slight violaceous tinge.

Clypeus broad, the apex roundly, but not deeply incised, with the sides straight, oblique. Labrum obliquely depressed. Mandibles black. Palpi yellow. Third abscissa of radius distinctly shorter than second. Metanotum irregularly transversely striated. Penultimate ventral segment covered with long black hair; the others more sparsely and shortly haired. Hinder metatarsus as long as the following 3 joints united and slightly more than one- third of its length. 12 mm.





*Salius matangensis*, sp. nov.

Black; the abdomen and legs, except the coxæ, ferruginous red; wings large, brilliant fuscous-violaceous, the nervures and stigma black; the labrum and apex of mandibles red; the palpi rufo-testaceous. ♂.

Length 13 mm.

Hab. Matang. June.

Head and thorax covered with pale pubescence; the pleuræ more sparsely with long pale hair; the base of metanotum smooth, with a V-shaped depression in the middle, the rest finely, obscurely striated; the sides of the apical slope at the top project bluntly, the apex much more largely and prominently. First abscissa of radius clearly shorter than the second; the fourth straight and obliquely turned upwards; the 3rd is roundly curved upwards; the 2nd recurrent nervure is received at the apex of the basal third of the cell. Tarsi spinose; claws dentate near the base. Frontal furrow distinct on the upper half only.

Is not unlike *S. veda*, Cam., but is much larger and has the head entirely black; and the median segment bituberculate laterally.

*Odynerus Kuchingensis*, sp. nov.

Black, the clypeus, eye incision, a mark above the antennæ, transverse above, its apex obliquely narrowed, a line behind the eyes, not reaching to their end and gradually narrowed, a mark, longer than broad, with straight sides, on the upper basal half of the propleuræ, the two united along the apex of the pronotum by a narrow line; tegulæ, a large mark on the scutellum, slightly narrowed in the middle at the base and apex, a mark, also contracted in the middle, at the base and apex, on the postscutellum, a large mark, on the mesopleuræ below the tegulæ, rounded above and below, longer than broad and slightly, gradually narrowed from top to bottom, and two large marks, rounded above, on the sides of the apical slope of the metanotum and the apices of the abdominal segments (the line on the 3rd narrower than the others), a large mark, longer than

broad and almost transverse at the base and apex, on the sides of the 2nd segment near the base and two smaller marks on the base below, yellow. Legs yellow, the 4. front coxæ behind, the hinder except for a mark on the sides, a line on the centre of the middle femora above, the hind femora and the inner side of the hind tibiæ, black. Wings hyaline; the radial cell from shortly behind the middle and the fore part of the 4th cubital cell, smoky; the nervures and stigma black. ♀.

Length 8 mm.

Hab. Kuching. June.

Front and vertex closely and distinctly; the clypeus sparsely punctured; it is longer than broad; its apex depressed in the middle, only very slightly incised, almost transverse. Pro- and mesothorax closely and clearly punctured; the pronotum transverse, keeled on the base; the scutellum sparsely punctured, its apex coarsely longitudinally striated; the yellow part furrowed slightly down the centre. Median segment with an oblique slope, its sides broadly rounded, the centre depressed. Propleuræ punctured like the pronotum; the meso- and metapleuræ more sparsely punctured above, smoth below. Abdomen closely punctured; the 1st segment becomes gradually wider from the base to the apex.

Allied to *O. hyades*, Cam., but is much smaller, wants the yellow lines on the mesonotum and the 2nd recurrrent nervure is not interstitial. *O. lybas*, Cam., is much less strongly marked with yellow and its 1st abdominal segment is raised in the centre and obliquely sloped at base and apex.

*Odynerus matangensis*, sp. nov.

Black, a line on the scape of the antennæ below, the clypeus, the mandibles except above and at the apex, the anterior tibiæ in front and a narrow band on the apex of the 1st and 2nd abdominal segments all round, yellow. Wings hyaline, the apical two-thirds of the radial and the greater part of the 4th cubital cell smoky; the nervures and stigma black. ♂.

Length 7 mm.

Hab. Matang.

Front and vertex closely, strongly and uniformly punctured, the clypeus more sparsely punctured and covered with white pubescence; it is slightly longer than its greatest width; the apex has a shallow, wide rounded incision. Apical two joints of antennæ brownish beneath, the claw is not quite so long as the joint. Thorax closely rugosely punctured; the apex of the median segment is less strongly punctured; its sides are straight and obliquely narrowed towards the centre, which is furrowed; the slope is almost vertical. Abdomen punctured like the thorax; the basal segment with a stout keel near the base.

Belongs to the group of *O. sicheli*. It is not unlike *O. robertianus*, but that species has the clypeus longer compared with its width, broadly marked with black in the middle, depressed at the apex, which is not so broadly rounded and depressed down the middle, the scutellums have a more distinct oblique slope from the base to the apex, the scutellum in *matangensis* being much more convex and without a distinct slope.

*Dielis truscanensis*, sp. nov.

Black, the sides of the clypeus broadly—the yellow line becoming slightly broader towards the apex,—the upper part of the mandibles, a line on the pronotum, broadest in the middle, bands on the apices of the basal 4 abdominal segments, commencing from shortly behind the middle and the outer side of the tibiæ, yellow. Wings clear hyaline, iridescent, the nervures and stigma black. Head, thorax, base of abdomen and its ventral surface thickly covered with long white hair; the basal 4 segments fringed with similar; the apical thickly with black, stiffer hair. Ocellar depression with curved striæ on the sides. Mesonotum and sides of scutellums punctured, but not closely or strongly; the metanotum at the base sparsely haired and punctured the rest thickly covered with longish white hair. ♂.

Length 13-14 mm.

Hab. Trusean.

The black basal bands on the 2nd to 4th abdominal segments are slightly dilated in the middle; the wings are slightly

infuscated at the apex; the 1st recurrent nervure is straight, not oblique in front, the 2nd roundly curved at the top and bottom; the 2nd transverse cubital is straight and oblique by sloped at top and bottom, the lower (and larger) abscissa having a more oblique slope than the upper; the 2nd abscissa of the cubitus is distinctly less in length than the 3rd and 4th united the apical abscissa of the radius roundly, obliquely curved. Pronotum rounded.

Comes close to *D. fimbriata*, Bur., which may be known from it by the middle of the pronotum being transverse, not rounded, by the 2nd abscissa of the cubitus being longer than the apical two united, by the recurrent nervures not being so widely separated and by the transverse median nervure being more rounded, not obliquely sloped above.

*Megachile Wallacei*, sp. nov.

Black, the hair on the metanotum, base of 1st abdominal segment, a band on the 2nd and the whole of the apical two segments above covered with whitish hair; the ventral slope bright red; the wings hyaline, the apex slightly clouded, the nervures and stigma black; the hair on the legs black; the basal 4 joints of the hind tarsi covered with bright red hair. ♀.

Length 18 mm.

Hab. Trusean. August.

Vertex distinctly punctured, more strongly and closely in the centre than on the sides; the face similarly punctured, more closely above than below; the clypeus more strongly punctured; the lower part with the punctures more widely separated and the apex impunctate. Mandibles strongly, but not closely punctured; they have 3 teeth; the apical is the longer; the 2nd shorter and bluntly rounded; the 3rd not so clearly separated, longer, broader and blunter. Mesonotum closely and clearly punctured, the punctures round and in places running into reticulations; the base in the centre is less strongly punctured and furrowed narrowly. Scutellum more strongly and similarly punctured. Metanotum smooth. Mesopleuræ closely and distinctly punctured; the meta much more

minutely and sparsely punctured. Mesosternum and mesopleuræ thickly covered with black hair; the meta- with longer and white hair. Fore tibiæ with the edges spined; the outer spine longer and sharper than the inner; the middle adn hind calcaria red, the others black.

Mesonotum thickly covered with short black hair; clypeus longer than the face, its apex transverse in the middle, the sides curved, it is sparsely haired; metatarsus not much narrower than the tibiæ which, at the apex on the outer side, projects into a stout spine.

This species belongs to a group which appears to be well represented in Malaya. It differs from *M. bicanaliculata* and *Frederici* in the mandibles having 3, instead of 2 teeth; *M. albocaudata* Friese has 4 mandibular teeth; the number of teeth in *M. miniata* Bingham, (J. Bomb. N. H. Soc. 1890-5), from Sumatra, is not stated.

*Megachile Sarawakensis*, sp. nov.

Black, the hair black, on the vertex, mouth and sternum white, on the median segment soot-coloured; the wings yellowish-hyaline, the nervures and stigma luteous. ♂.

Length 12 mm.

Hab. Sembulong.

Front, vertex and face closely punctured; the clypeus more closely and finely punctured, the rest more widely and not so strongly as the front; its apex fringed with long pale fulvous hair. Mandibles short and broad; the apical tooth long and sharp-pointed; the 2nd broad, bluntly-rounded, the 3rd indistinct. Thorax closely, minutely punctured, as is also the scutellum; post-scutellum alutaceous. Metanotal area alutaceous, depressed in the centre. Back of abdomen coarsely alutaceous, obscurely punctured, the segments depressed in the middle; the last segment with a shallow incision in the centre; and with 2 distinct, blunt, and an outer indistinct, tooth on either side of the incision; its apex is broadly depressed and the middle is bluntly keeled. Metatarsus narrower than the tibiæ.

*Megachile varidens*, sp. nov.

Black; the front, vertex and thorax above with rufo-fulvous hair, the hair on the face, clypeus and pleuræ long and white; the abdominal segments with rufous hair bands; wings hyaline, highly iridescent, the apical half clouded with fuscous-violaceous, the stigma and nervures black. ♂.

Length 9 mm.

Hab. Kuching. January.

Front and vertex closely and distinctly punctured, the former less strongly than the latter. Face closely rugose; the clypeus closely punctured, the punctures round, moderately deep and close together; in the centre is a smooth, moderately broad smooth line. Mandibles with 4 teeth; the 1st and 4th much larger than the central and sharp-pointed; the 2nd bluntly rounded, the 3rd longer than it and sharp-pointed. Thorax closely rugosely punctured. Metanotal area clearly defined, alutaceous and with a shallow furrow in the middle; and less closely haired than the rest of the segment, which is pitted. The basal segments of the abdomen closely, but not very strongly; the others more strongly rugosely, punctured; the 1st has the basal slope margined round the top, the 2nd and 3rd and, to a less extent, the 4th transversely furrowed; the last incised; the incision wider than long, with the sides oblique, straight and meeting in the centre; below the last segment is widely depressed in the centre and with the sides keeled at the apex. Legs stoutly; the hinder tibiæ bluntly, roundly projecting at the apex on the outerside.

Is very like *M. borneana* but may be known from it by having 4 distinct teeth on the mandibles. The same character separates it from *M. cæcina* which it closely resembles otherwise.

*Nomia bidiensis*, sp. nov.

Black, the flagellum of antennæ below and at the apex above, rufous, the hair on the head and thorax pale fulvous; all the abdominal segments with broad pale pubescent bands; the hair on the ventral surface pale, with a slight fulvous tint; wings

hyaline, the stigma pale testaceous, the costa and nervures darker. ♀.

Length 7 mm.

Hab. Bidi. December.

Front, vertex and face closely minutely, irregularly reticulated, more closely in the centre than on the sides; the occiput sharply margined. Mesonotum closely punctured, almost reticulated; the centre with an impressed line. Metanotal area stoutly irregularly longitudinally striated and without an apical bounding keel; the apical slope with 2 or 3 irregular longitudinal keels. Pleuræ alutaceous; the meso- with an oblique keel down the middle, behind which it is closely striated; near the apex of the meta- are 2 curved keels, the space between them being striated. The hair on the tarsi is more rufous than on the rest of the legs; the apical 4 joints of the fore tarsi rufous. First and second transverse cubital nervures straight and parallel, the cell being of equal width throughout and distinctly shorter, above, than the following; the recurrent nervure is received shortly beyond the middle; this being also the case with the 2nd the 1st is straight and oblique, the 2nd roundly curved.

Is not unlike *N. bicaniculata*, Cam., that species is readily separated by the different form of the median segment which is much larger and with the apical slope stoutly keeled round the top.

*Nomia erythropoda*, sp. nov.

Black; the 1st abdominal segment with a piceous band on the apex, the others banded with blue, variegated with orange; the antennal scape, apex of clypeus, labrum and legs ferruginous-red; the hair on the head, thorax, base of abdomen and legs pale fulvous; wings hyaline, the radial and cubital cells smoky, the stigma and nervures black. ♂.

Length 9-10 mm.

Hab. Kinghang. January.

Lower part of front and face keeled in the centre, the former more strongly than the latter; the clypeus distinctly





punctured, except at the apex; the orbits thickly covered with fulvous pubescence and more sparsely with fulvous hair. Mesonotum opaque, minutely punctured; post-scutellum thickly covered with pale fulvous pubescence. Metanotal area irregularly striated, the central striæ converging inwardly. Hind femora not much thickened; on the lower side of the hind tibiæ is, at the middle, a raised curved keel, curving obliquely from the inner side to the outer and reaching to the apex, it becoming gradually reduced in size; tarsi not thickened.

A species easily recognized by the rufous legs and by the oblique keel on the inner side of the hind tibiæ.

# The Aroids of Borneo.

By H. N. Ridley.

The island of Borneo is very rich in aroids, and the present list represents doubtless but a small portion of those which will eventually be found by collectors. I have attempted however to make it as complete as I could, and to record all species previously described together with a number collected by myself in a short trip to B. Sarawak, in 1903 and others obtained by Dr. Haviland some years previously. Dr. Engler in Malesia described a number collected by Dr. Beccari chiefly in Sarawak, but though I was working over Dr. Beccari's old collecting ground, I obtained a considerable number which appear to have escaped him.

The chief difficulty in the study of aroids lies in the very bad habit of some botanists and gardeners of describing species from leaves only. Aroids vary very much in the form and venation of their leaves, and leaf descriptions are quite worthless, and have led to great confusion. This is especially the case in Borneo aroids for many species possess very ornamental leaves and have been introduced as cultivated plants, and inadequately described and named.

## Cryptocoryne.

This genus of aquatic aroids seems to obtain its maximum development in Borneo though several species occur in India and the Malay peninsula and in islands of the archipelago. All the species in Borneo inhabit the jungle streams and rivers except the tidal river species *C. ciliata*.

*C. ciliata*, Fischer. Tidal Mud, Sarawak, (Beccari) Bishop Hose.

Common in most of the tidal rivers in mud in the Malay peninsula and islands.





*C. ordata*, Griff. Sarawak, (Beccari). Borneo (Motley).

Distribution, Malay peninsula and Java.

*C. striolata*, Engler. Sarawak, (Beccari). Rejang, Sibu (Haviland 2375).

The tube of the spathe which is very slender appears to have been white, the narrow lanceolate limb purple. Fruit on a pedicel $\frac{1}{2}$ inch long sub-globose $\frac{3}{8}$ inch long, seeds $\frac{1}{4}$ inch long curved acute narrow reticulate.

Endemic.

*C. grandis*, n.sp. Petioles 6 to 14 inches long, leaf blade ovate cordate, obtuse 3-4 inches long, 2-3 inches wide closely and finely dotted and sometimes striolate. Peduncle 1 inch long. Spathe tube 15 inches long $\frac{1}{4}$ inch wide, dilated portion $\frac{1}{2}$ inch long, limb lanceolate caudate $2\frac{1}{2}$ inches long $\frac{3}{8}$ inch wide at base, apparently yellow in the mouth and purple above smooth.

Sarawak. Jungle stream path to Matang (Haviland 2319) Sept. 23. 1892.

Endemic, the biggest species I have ever seen except *C. ciliata.*

*C. pallidinervia*, Engler. Sarawak (Beccari).

Endemic.

*C. longicauda*, Engler. Sarawak (Beccari).

Endemic.

*C. bullosa*, Engler. Sarawak (Beccari).

I saw a quantity of what appeared to be this plant in the river at Bidi, near the Loban Angin, but could see no flowers. Saribas (Haviland 2079).

Endemic. Engler's figure Malesia, pl. 27, i, is of a young spathe. When adult the blade is longer than the tube and very narrow. Fruit white $\frac{1}{4}$ inch wide peduncle 3 inches.

*C. Lingua*, Engler. Sarawak (Beccari). Rejang Sibu (Haviland 3129).

Endemic.

*C. auriculata*, Engler. Sarawak (Beccari).

Endemic.

*C. spathulata*, Engler. Sarawak (Beccari).

Endemic.

TYPHONIUM.

Small aroids usually weeds of cultivation.

*T. trilobatum*, Schott. Sarawak (Beccari). Bau, (Ridley).

*T. motleyanum*, Schott. Borneo (Motley).

AMORPHOPHALLUS.

Engler records only one species of this genus from Borneo, but there are doubtless more. They are seldom met with in flower, I found two in leaf.

*A. giganteus*, Bl. Sarawak (Beccari).

Distrib. Java.

ARISŒMA.

*A. umbrina*, n.sp. Root stock short with numerous woolly roots. Leaves 4 or 5; young ones ovate acuminate entire 3 inches long, 1½ wide; older ones trifid lobes oblong or lanceolate acuminate, 5 inches long 1¼ inch wide, base narrowed into a petiolule ½ inch long, tip acute with a slender awl-shaped point ¼ inch long, side lobes macquilateral nearly sessile, nerves 3 or 4 pairs joining an intramarginal one, petiole 5 inches long, all light green. Peduncle 7 inches long, spathe tube green 1¼ inch long, limb ovate 1-1½ inch long, tipped with a slender point ¼ inch long, deep brown spotted with light green. Spadix appendage filiform 2 inches long

green. Male flowers in groups of 4 or 5, stamens shortly stalked, numerous.

Borneo, Sarawak. Matang, alt. 1500 feet.

A very distinct plant with its dark brown hood spotted with yellowish green.

*A. filiforme*, Bl., var. *chlorospatha*, Hallier.

Central Borneo at Liang Gagang, (Hallier).

HOMALOMENA.

*H.* (§ *Eu.-homalomena*). *paludosa* Griff. Sarawak, Kuching (Barttelt).

Common in the Malay peninsula.

*H. sagittifolia*, Jungh. Sarawak on Matang (Ridley).

South Borneo Mt. Gintang (Korthals) Labuan (Motley).

var *pontederiæfolia*. Sarawak Kuching (Haviland 3134).

*H. propinqua*, Schot, to which Engler refers the plants collected by Korthals and Motley quoted above is probably this species which is common in the Malay peninsula.

*H. Beccariana*, Engler. Sarawak (Beccari).

Engler describes this as allied to *H. rostrata* Griff, and *H. Miqueliana* Schott and suggests that the three might be combined into one species, *H. Miqueliana* Schott is based on a plant collected by Korthals in Southern Borneo.

*H. insignis*. Ill. Hort 1885. t 560.

Introduced from Borneo. From the description in Nicholsons Dict. Gardening Supplement, this seems near *H. paludosa*.

*H. Sarawakensis*, n.sp. Stem woody creeping ascending with long roots. Petioles 3-4 inches long rather slender sheath 2 inches long red, blade oblong lanceolate cuneate at the base narrowed into the petiole tip acute 5-7 inches

long, 3 inches wide, primary nerves 6 or 7 pairs, not very district Peduncle 4 inches long more slender than the petiole, Spathe 2 inches long constricted above the female inflorescence, swollen basal part longer than the narrower upper part.

Sarawak Bidi (Ridley 11714).

Endemic.

*H. Borneensis*, n. sp. Stem stout petiole 7-7½ inches long sheathing about half its length, blade ovate base broad rounded, apex cuspidate, nerves 8 pairs conspicuous on the under surface, alternate 8 inches long, 6 inches, wide. Peduncle 6 inches long, Spathe 4 inches long, constricted above the middle thick nearly an inch through below, blade shortly cuspidate. Spadix rather slender, male portion 1¼ inch long white, upper part of female nude or with scattered female flowers, 1 inch long.

Sarawak Kuching (Ridley).

Endemic, near *H. sagittifolia* Jungh. but the leaves are not at all cordate.

*H. aromatica*, var. *cordata* Schott.

Sarawak. (Beccari). Kwala Kapuas, (Grabowski) (Engler Malesia 282).

These plants are probably *H. caerulescens* Jungh, a common Malay peninsula and Javanese plant, but it is possible that this species is only a form of Roxburgh's *H. aromatica* which is only recorded from Tencasserim and Chittageng.

*H. Havilandi*, n. sp.

Petiole slender 6 to 8 inches long very shortly sheathing, blade ovate with a broad indented base, hardly cordate apex cuspidate 8-10 inches long 5-6½ inches wide, nerves very unnumerous fine and inconspicuous. Peduncle slender 5-6 inches long, spathe narrow 2 inches long ¼ inch wide slightly constricted above the female portion. Male portion slender 1½ inch long. Female shorter ½ inch.

Sarawak Bongo range near Penkalan Ampat (Haviland 102). Endemic.

The form of the leaves is that of *H. borneensis* but the venation is very close and fine, there being practically no primary nerves. The spadices are also much smaller and narrower but in the specimens are quite young.

*H. fasciata*, n. sp.

Leaves solitary narrow lanceolate long acuminate 6-7 inches long 1½ inch wide narrowed to the base above deep green with a central white feather, beneath pale green, with 8 pairs of elevated nerves, petiole 7-8 inches long slender terete. Spadices rising from a basal narrow sheath 3 inches long, peduncle 1½-2 inches long slender spathe 1¼ inch long curved base swollen ⅜ inch through, above narrowed acuminate all pale green. Spadix little shorter, terminal portion cylindric acuminate ⅝ inch long white of sterile hexagonal flowers, below ¼ inch narrower of oblong male flowers, 4 celled anthers, below a whorl of white irregular sterile flowers, then a short bare portion, and whorls of green subglobose sessile, pistils with a shore thick style and punctiform stigma.

Sarawak. Bidi Woods, fl. Oct. 1903 (Ridley).

Endemic. A pretty plant, which I brought alive to Singapore and flowered in the Botanic Gardens.

*H. saxorum*, Miq.

Borneo (Korthals).

*H. truncata*, Hook. fil ?

*Chamæcladon truncatum*, Schott., var. *deltoideum*, Engl.

S. Borneo. Kapuas on the river, Riam Horas (Grabouski).

There is same doubt as to whether this plant is the same as Hooker's *H. truncatum*, a native of Mergui.

*H. ovalifolium*, Ridl. *Chamæcladon ovalifolium*, Schott.

Borneo (Korthals).

*H.* (§ *Chamæcladon*), *paucinervia*, n. sp.

Stem about 4 inches tall with long roots. Leaves numerous lanceolate gradually tapering from the middle to the base apex subacute. pale beneath 3½ inches long 1 inch wide, primary nerves 4 pairs alternate, petiole slender 1-2 inches long, sheath short broad red ¼ inch long. Spathes small ½ inch long on a very slender peduncle of equal length, spathe oblong with a short beak. Spadix a little shorter, male portion fourtimes as long as the female cylindric. Female flowers very few in two or three whorls. Pistil ovoid, stigma discoid.

Sarawak, Matang (Ridley).

One of the narrow leaved wet rock species after the style of *H. angustifolium* and as near the *Chamæcladon pygmaeum* of Engler's Araceæ No. 96 as anything but differing not only in foliage but in the very few female flowers.

*H. intermediam*, n. sp.

Stem 1 inch long with numerous thick grey roots. Leaves numerous obliquely elliptic acute minutely mucronate at the tip, narrowed slightly toward the base 5 inches long 2 inches wide or smaller. Nerves fine about 14 pairs, secondary nerves few and indistinct, petiole slender 2-2½ inches long, sheathing for about ½ its length. Peduncle of spadix 3 inches long slender. Spathe 1-1½ inch long nearly ¼ inch through narrowed above the female portion about half way up, and cuspidate at the tip.

Sarawak, Matang (Ridley) Endemic.

This plant is about the size and habit of *H. Griffithii* but very different in its their textured fine nerved leaves and the long slender peduncles, and spathe narrowed in the middle. It seems to be intermediate between the section *Euhnomalomena* and *Chamæcladon*.

*H. crassinervia*, n. sp.

Petioles stout 6 inches long, sheathing for more than half their length, blade lanceolate acuminate base unequal narrowed 11 inches long 3 inches wide, keel thick primary nerves about 20 pairs, secondary nerves very numerous with short transverse bars. Peduncle 3 inches long, spathe 3 inches long, constricted a little above the middle lower part broad and thick limb of spathe with a cusp $\frac{3}{8}$ inch long spadix $2\frac{1}{2}$ inches long. Male 1 inch portion rather slender cylindric. Stamens moderately large, a short narrowed portion of abortive flowers between that and the female portion. Pistils in about 20 whorls.

Sarawak. Matang (Ridley). Endemic.

*H lancea*, n. sp.

Stem short. Leaves few petiole slender 6-8 inches long, sheathing from 2-3 inches blade lanceolate acuminate with a long point narrowed at the base into the petiole 7 inches long, $1\frac{1}{2}$ inches wide rather their nerves ascending rather distant 5 pairs distinct on the lower surface, alternate, no visible transverse reticulations. Peduncle 4 inches long rather slender. Spathe thick 2 inches long constricted above the female part of spadix, rather more than $\frac{1}{2}$ its length, tip shortly cuspidate male portion of spadix rather slender, anthers small.

Sarawak, Matang (Ridley). Endemic.

*H. ovata*, Engler. Sarawak (Beccari).

*H. subcordata*. Engler. Sarawak (Beccari).

*H. punctulata*. Engler. Sarawak (Beccari).

*H.* (§ *chamaecladon*) *pumila*, var. *purpurascens*. *Chamæcladon pygmaeum*, Engl. ?

Borneo (Korthals); Sarawak, Matang (Ridley); S. Borneo, Kapuas (Grabowski).

var. *latifolium*, (Engler).

Sarawak (Beccari).

This little plant is common in the Malay Peninsula. The plant distributed by Engler under his number and figure (Araceæ 96) does not seem to be this species.

*H. Griffithii*, Hook. fil. Borneo (Motley).

var. *obliquatum*, *H. obliquatum* Hook. fil., *Chamæcladon obliquatum* Schott.

Sarawak (Beccari).

var. *acuminata*. Leaves ovate with a long point, or elliptic acuminate, nerves less conspecious than in typical *H. Griffithii*.

Sarawak. Bau (Ridley 11713).

This plant in the form of leaf approaches *H. trapezifolia*, Hook, fil., but has the small spathes of *H. Griffithii*, which is a most variable plant, several forms of which have been separated into species on account of the form of the leaf, I have seen nothing exactly like this variety from the Peninsula, but hardly like to separate it as a species.

*H. humiliis*, Hook. fil.

Is recorded from Borneo in the flora of British India but without specific locality or collector's name. It is common in the hills of the Malay Peninsula.

AGLAONEMA.

*A. palustre*, Teysm. Sarawak (Beccari).

Common in the tidal mud of the Kuching river, (Ridley).

Distrib. Malay Peninsula, Sumatra.

*A. schottianum*, Miq. Sarawak (Beccari), Matang (Ridley); Southern Borneo (Korthals *fide* Engler).

*A. pictum*, Kunth. Sarawak (Beccari).

Malay Peninsula.

*A. oblongifolium*, Schott. Sarawak (Beccari); Kuching (Haviland 972), Road to Bau, Ridley.

Common, Malay Peninsula.

COLOCASIA.

*C. antiquorum*, Schott. Sarawak (Beccari).

A common cultivated plant, probably not native in this part of the world.

*C. gigantea*, Hook. I saw plants of what I believe to be this at the Byte Estate near Sandakan, British North Borneo.

ALOCASIA.

*A indica*, Schott. Sarawak (Beccari).

A common cultivated plant. Var. *metallica*, Borneo (Miquel).

*A. macrorrhiza*, Schott. Sarawak (Borneo).

This is a commonly cultivated plant.

*A. Lowii*, Hook. fil. Common, on limestone rocks, Ball. Sarawak (Ridley).

*A. Lowii* is comonn on limestone rocks in Borneo and in the Malay Peninsula, and Beccari could hardly have failed to find it.

*A. denudata*, Engler. Matang.

I found very fine plants of this common Malayan plant on Matang, which though not in flower at the time of my visit were certainly this species. The variety *Thibautiana*, Hart, with white reticulating views occurs in Borneo.

*A. longiloba*, Miq. Sarawak (Beccari), is almost certainly this plant. Miquel's discription however is not complete enough to determine what he meant.

*A. Beccarii*, Engler. Sarawak (Beccari). Matang at the top (Ridley).

Distrib. Malay Peninsula.

*A. Korthalsi*, Schott. Sakumbang (Korthals).

A very little known species, described only from leaf specimens.

*A. scabriuscula*, N. E. Brown, Gard. Chron. 1879, II. 296.

Introduced into cultivation from Borneo.

*A. cuprea*, Koch. Locality unknown.

Introduced into cultivation from Borneo.

*A. Villeneuvei*, Lind. and Rod. Ill. Hort, 1887, p. 59, Pl. XXI. Sarawak, Bau (Ridley 11715).

This has dark green leaves, with the petioles spotted with dark brownish red. The flowers are not known, but the spathe in fruit is about 1 inch long and $\frac{3}{4}$ inch wide, white or rose pink, on a peduncle 5 inches long.

SCHISMATOGLOTTIS.

*Sch. barbata*, Engler. Sarawak, Kuching (Beccari).

*Sch. crispata*, Hook. fil. Sarawak, Bau, etc. (Ridley).

*Sch. asperata*, Engler. Sarawak (Beccari)

var. *albomaculata*. Sarawak, (Beccari).

*Sch. Beccariana*, Engler.

var. *oblonga*. Sarawak (Beccari).
var. *cuspidata*. Sarawak (Beccari).
var. *albolineata*. Sarawak (Beccari).
var. *angustifolia*. S. Borneo, Kapuas Grabourki.

Apparently a common and variable plant but I have failed to recognise what was intended by this species.

*Sch. modesta*, Schott. Borneo (Korthals).

Common near Sungei Assun, Kapuas (Hallier).

*Sch. calyptrata*, Zoll and Mor.

Form *concolor*. Mid Borneo, at Amai-Ambit and Liang Gagang (Hallier).

Form *trivittata*. Central Borneo (Hallier).

A common species in the Malay Peninsula and over the Archipelago.

*Sch. variegatar*. Of Gardens, is said, Nicholson's Dictionary of Gardening, to be *S. neo-guineensis* which is a variety of *S. calyptrata*. It was introduced from Borneo.

*Sch. pusilla*, Engler. Sarawak (Beccari).

West Borneo (Jagori, fide Hallier).

*Sch. acuminatissima*, Schott. var. *concinna*. South Borneo (Korthals).

Probably a form of *S. calyptrata* says Engler, but the description which is very incomplete hardly fits any form of that species.

*Sch. decora*, Bull, Gard. Chron. 1884, t. 711. Borneo.

*Sch. ovata*, Schott. Borneo (Korthals).

*Sch. conoidea*, Engler. Sarawak (Beccari).

*Sch. Motleyana*, Engler. *Apatemone Motleyana*, Schott. Labuan (Motley).

*Sch. longispatha*. Bull. Cat. 1881. III. Hort. XXIX t. 466.

I obtained this pretty species in the Bidi Woods, Sarawak, and it flowered in the Botanic Gardens in Singapore, in March and April, 1904. The leaves are

broad, dark green with a central white bar. The spadix is 3 inches long, the spathe greenish white, of which the tubular portion is 1½ inch long. The appendage of the spadix cylindric subacute white ¾ inch long of irregular abortive flowers. Male portion short ¼ inch long, anthers one- rarely 2-celled. Female flowers more numerous thick oblong green, stigma pulvinate, sessile, abortive flower few irregularly flattened club shaped or spathulate tipped pink, little shorter than the pistils.

*Sch. multiflora*, n. sp.

Rhizome short thick with numerous leaves. Leaves dark green lanceolate acuminate, narrowed at the base, 8-9 inches long, 2-3 inches wide. 14-18 nerved, petiole 6 inches long purple, numerous red brown sheaths at the base spadix. On a peduncle 2 inches long. Spathe at first narrow acuminate 4-5 inches long white, tubular portion 1 inch long pale green limb recurved, when open broadly lanceolate acuminate. Male spadix cylindric 3 inches long, flowers very numerous, all fertile, no appendage of barren flowers. Flowers oblong, anther cells distant. Female portion 1 inch long no nude portion between, pistils ovoid narrowed slightly upwards towards the discoid stigma.

Sarawak, Matang, in rocks in a stream abundant, (Ridley 11582) Endemic. Remarkable for its long spadix and very numerous flowers.

*Sch. pulchra*, N. E. Br.

Rhizome short, leaves ovate acuminate base narrowly cordate 3½ inches long 2 inches wide, petiole 2 inches long back rounded edges above straight sheath short and broad sides patent, tips rounded, blade light green mottled frey. Peduncle very short. Spathe 1½ inches long base dark green ¾ inch long carried down the peduncle and adnate to it, lamina 1 inch long pale green cuspidate. Spadix nearly as long as the spathe, appendage cylindric ⅜ inch long obtuse white of irregular ovoid bodies, male

portion narrower ½ inch long anthers lobed of 2 distant cells, rather scattered, then a few abortive females. Female portion as long as the male. Pistils oblong shortly stalked, stigma discoid, about 7 irregular rows of females rather distant. Back of female portion adnate to stipes. Sarawak at Bidi (Ridley). This plant originally described from cultivated plants, was sent to the Botanic Gardens Singapore by Mr. Chatterjee of Calcutta as *Sch. crispata* from which however it is very distinct.

*Sch. caulescens.* n. sp.

Stem 2-4 inches long, base rooting, upper part ascending, with alternate leaves a quarter of an inch apart. Leaves elliptic lanceolate to ovate subacute at the tip, base rounded 2-4 inches long 1-1¼ inch wide, minutely pustular on both surfaces, nerves primary 10 pairs, midrib scurfy, the basal nerves run parallel to the edge forming a distinct margin at the tip, petiole 1½ inch long or much shorter in the upper leaves sheathing for from nearly one half of its length in the lower leaves, to ¾ of its length in the upper shorter petioles, tips of sheath free. Spathe from the upper axil, on a peduncle about ½ inch long slender, base of spathe ¾ inch long narrowed to the base. Spadix slender 1 inch long male portion slender cylindric flowers apparently fertile to the tip.

Sarawak, Bidi. (Ridley).

Apparently allied to *Sch. conoidea* Engl. but the long petioles distinguish it from this. The elongate stem is unusual but does occur in the genus.

As often happens in *Schismatoglottis* I was unable to find fully developed spadices in several species. One plant collected at Bau in Sarawak seemed closely allied to *S. brevipes* Hook. fil and *S. wallichii* of the Malay peninsula but had remarkably long petioles over 6 inches long with an ovate often cordate leaf 3 inches long beneath, and blotched with dark green above. Another of the same section had leaves as large as those of *Sch.*

*Wallichii* but very short petioles sheathing for half the length or more. The spathe complete but too much crushed in drying resembles that of *Sch calyptrata* Zoll. I met with it on Matang. A plant closely allied to the last named species was met with at Bau and may possibly be a form of *S. calyptrata*. The leaves are broadly ovate elliptic, and cordate at the base, the lobes rounded and very close together.

PIPTOSPATHA, N. E. BR.

*P. insignis*, Br. Sarawak, Lundu (Micholitz).

*P. marginata*, Engler. Sarawak (Beccari).

*P. elongata*, Engler. Sarawak (Beccari). S. Borneo, Kapuas (Grabowski).

Distrib. Malay Peninsula.

*P. Grabowskii*, Engler. Sarawak. Rejang Belaga (Haviland). S. Borneo, Mindai-Pramassan, on the river Telanakan (Grabowsky).

MICROCASIA, BECC.

*M. pygmæa*, Beccari. Sarawak (Beccari).

*M. elliptica*, Engler. Malesia, vol. I. TXXV f. 2-8. Sarawak (Beccari).

ANADENDRUM, SCHOTT.

*A. montanum*, Schott. Sarawak (Beccari).

Common in the Malay Peninsula from Tenasserim southwards.

*A. affine*, Schott. Sarawak (Beccari).

SCINDAPSUS.

*Sc. pictus*, Hassk. Cat. Bogor 1844-58. Sarawak in Woods (Ridley). Near Pegora (Haviland 2568).

Common in the Malay Peninsula. Haviland's plant is a very small form.

*Sc. hederacea*, Schott. South Borneo (Korthals).

*Sc. crassipes*, Engler, and the var. *Beccarii*, (*Sc. Beccarii* Engler). Sarawak (Beccari), Limestone rocks, Bau (Ridley), common. On rocks Malay Peninsula.

*Sc. geniculatus*, Engler. Sarawak (Beccari).

*Sc. coriacens*, Engler. Sarawak (Beccari).

*Sc. longipes*, Engler. Sarawak (Beccari).

*Sc. rupestris*, n. sp.

Stems $\frac{1}{4}$ inch through creeping on the ground. Leaves erect 3-4 in a tuft long petioled, blade coriacious lanceolate acuminate acute base broad or slightly narrowed 5-7 inches long 1-1$\frac{3}{4}$ inch wide, primary nerves hardly more conspicuous than the secondary ones, no transverse nervules, secondary nerves numerous and close, petiole 6-8 inches long rather slender ribbed, sheathed for $\frac{3}{4}$ its length, sheath narrowed papery, knee small $\frac{1}{4}$ inch. Spathe boat shaped white 1 inch long $\frac{3}{8}$ inch through subobtuse on a peduncle 2 inches long. Spadix $\frac{3}{4}$ inch long cylindric blunt sessile. Pistils rounded small. Stigma sunk elliptic.

Sarawak Bau (Ridley 11853). Creeping on limestone rocks at Bau.

*Sc. Havilandi*, n. sp.

Stem $\frac{1}{6}$ inch through. Leaves long petioled blade their lanceolate long acuminate base cuneate 9 inches—1z long 2$\frac{1}{4}$-2$\frac{1}{2}$ wide, primary nerves 10 pairs fine but distinct, secondary nerves numerous fine, transverse nervules fine distinct but few, petiole 4-8 inches long slender sheathing narrowly about $\frac{1}{3}$ of its length. Spadix peduncle 1 inch long. Spathe oblong boat-shaped 2 inches long $\frac{3}{4}$ inch wide beaked. Spadix 1$\frac{1}{2}$ inch long thick cylindric nearly

sessile. Pistils rounded rhomboid. Style short but distinct and columnar. Stigma discoid.

Sarawak Saribas (Haviland 2089),

July 1892. Endemic.

RAPHIDOPHORA.

Species with entire leaves.

*R. Lobbii*, Schott Bonplandia V. p. 45. Borneo (Korthals). Common in the Malay Peninsula.

*R. sylvestris*, Engler Prodr 239. Sarawak (Beccari), and var *obtusata*, same collector.

Distrib. Java, New Guinea.

*R. Peepla*, Schott. Bonplandia V. 1857 p. 45. Kapuas River at Tumbangtliang (Grabowski).

Distrib. India, Ceylon and Moluccas.

*R. minor*, Hook. fil. Sarawak, Kuching scrambling over bushes near the river. Common in the Malay Peninsula.

*R. migrescens*, n. sp.

Stem woody stout flexuous $\frac{3}{8}$ inch through angled, internodes $1\frac{1}{2}$ inch long. Leaf coriaceous drying black, blade oblong lanceolate acuminate somewhat oblique, base rounded 7 inches long by 2 wide, nerves very fine and close, primary ones not distinct, petiole 3 inches long grooved rather slender hardly winged at all. Knee short and thick. Peduncle stout $2\frac{1}{2}$-3 inches woody. Spathe not seen, spadix 3 inches long very thick cylindric blunt. Pistils rounded 6 angled at the tip. Style none. Stigma round sunk, pulvinate.

Sarawak, Matang (Ridley, Bartlett).

Bartlett's specimens have narrower more lanceolate leaves, but it is evidently the same plant and from the same locality.





*R. elliptica*, n. sp.

Leaf elliptic coriaceous apex mucronulate base rounded 6-7 inches long 3-2½ wide nerves very numerous and fine, primary nerves no stronger than secondary ones, petiole 5-6 inches long, narrowly sheathed to the base of the blade. Peduncle about 1 inch long, spathe 3-4 inches long ½ inch thick boat-shaped cuspidate, cusp ½ inch long. Spadix stout sessile. Pistils rounded at the top obscurely hexagonal, stigma round sunk.

Sarawak Bau (Ridley). Allied to *R. Maingayi*, and *R. pteropoda* Teysm. Endemic.

*R. fluminea*, n. sp.

Stem creeping ⅙ inch through. Leaves elongate lanceolate gradually acuminate narrow base acuminate 12-15 inches long 1-1½ wide midrib prominent, primary nerves very numerous about 20 pairs, transverse nervules conspicuous on the back, petiole slender 3-4 inches long sheathing only at the base, knee ¼ inch, long. The blade bent at an angle with the knee. Peduncle 2½ inches long slender, spathe 1½ inch long boat-shaped cuspidate cusp ⅜ inch long. Spadix as long as the body of the spathe, cylindric ⅙ inch thick pistils very small $\frac{1}{16}$ inch across rounded 6 angled. Stigma slightly elevated pulvinate.

British North Borneo. At Bongaya, creeping on rocks over hanging the Labuk river (Ridley). Endemic.

## *Species with Pinnatifid Leaves.*

*R. Hueyelii*, Schott. Sarawak, (Beccari). Distrib. Malay Peninsula.

*R. maxima*, Engler. Bull. Soc. Tosc. di Rt. 1879,269. Sarawak (Beccari). Distrib. New Guinea.

*R. Beccarii*, Engler. Sarawak (Beccari). Distrib. Malay Peninsula.

*R. tenuis*, Engl. Jahrb. 1. 181. Sarawak (Beccari). Matang near the top (Ridley).

LASIA.

*L. spinosa*, Thw. Sarawak (Beccari).

A common tidal-mud plant occurring in India, China the Malay Peninsula and Islands.

CYRTOSPERMA.

*C. lasioides*, Griff. *C. merkusii*, Schott. Sarawak, (Beccari).

Common in damp open country all over the Malay Peninsula.

*C. ferox*, Linden and N. E. Br.

Introduced from Borneo and figured in the Illustration Horticole. I met with a plant much resembling this in dense forests in Sungei Siput, Perak, in a jungle stream.

PODOLASIA.

*P. stipitata*, N. E. Br.

First introduced from Borneo by Mr. Curtis, and described in the Gardener's Chronicle in 1892. It inhabits dry woods usually at an elevation of about 2000 feet and occurs in many parts of the Malay Peninsula.

POTHOS.

*P. Barberianus* Schott., Aroid I. p. 24, t. 53.

Labuan (Barber, Motley). Sarawak (Beccari). Distrib. Malay Peninsula.

*P. leptostachyus*, Schott., Prodr. 571. Borneo (Motley.) Distrib. Java.

*P. Beccarianus*, Engler. Prodr. 92. Sarawak, (Beccari).

*P. Motleyanus*, Schott., Aroid. 1. 25, t. 55. Borneo (Motley and Barber).

*P. insignis*, Engl. Sarawak (Beccari).

*P. brevistylus*, Engl. Sarawak (Beccari) near Kuching (Haviland 971).

*P. longus*, n. sp.

Shrub, stems 1/16 inch through. Leaves elliptic long acuminate base narrowed or not 6-7 inches long 1½ inch wide, keel strongly elevated, marginal nerve not far from the edge, nerves five numerous, reticulations fine distinct, petiole (knee) ¼ inch long, sheath 2 inches long narrow prolonged above the knee. Peduncle graceful decurved 2½ inches long. Spathe linear subacuminate mucronulate 9 inches long. ⅜ inch wide. Spadix terete 6 inches long, on a slender stalk ½ inch long. Petals and sepals with very narrow elongate tops much longer than wide. Stamens very small reniform 2 celled. Stigma small pulvinate not supported on a style.

Sarawak four miles from Kuching; (Haviland d. 9. p.f. 934).

This is remarkable not only for its very long spathe and spadix, but for the curious narrow long tips of the perianth lobes which are almost linear (grey edged paler when dry) and hardly one-fourth as wide as they are long.

# New and little known Malayan Plants.

## *Series II.*

By H. N. Ridley.

This is another contribution to the knowledge of plants of the Malay Peninsula and adjacent countries, some species of which have been collected by myself, others by Dr. Gimlette in Kelantan, Mr. Rostado in Tringanu, Mr. Machado in Perak and Mr. Burnmurdoch in the rich forest of Semangkok Pass in Selangor. The most remarkable discovery is that of an indigenous species of Palmyra Palm, *Borassus*, by Mr. Machado in the forests at Kamuning.

## New Plants.

### Orchideæ.

*Oberonia gracillima*, n. sp.

Stem an inch long or less, often almost stemless. Leaves four or five ensiform acute $1\frac{1}{2}$ inch long $\frac{1}{8}$ inch wide. Spike very slender 3 to 4 inches long glabrous base nude for $\frac{1}{4}$ of its length. Bracts lanceolate acute entire longer than the ovary. Flowers minute, whorled 5 or 6 in a whorl. Sepals oblong obtuse recurved entire. Petals broader ovate toothed, all whitish. Lip orange oblong bifid at the tip with a wide sinus between the acute tips, edges minutely toothed, auricles short rounded.

Tringanu at Bundi (E. Rostado).

This little orchid is allied to *O. prainiana* but has a very different lip.

*Saccolabium* (§ *Cleisostoma*) *suffusum*, n. sp.

Stem stout 6 inches long $\frac{1}{2}$ inch through. Leaves fleshy 6 inches long 1 inch across, light green, lorate obtuse, unequally rounded bilobed. Panicle lax few

branched 18 inches long, branches 3 or 4. Flowers numerous ¼ inch long to the tip of the spur, pedicel ⅛ inch long sepals lanceolate acute yellow suffused with brown. Petals narrower linear. Lip fleshy porrect, spur cylindric horizontal obtuse, side lobes short oblong obtuse, midlobe hastate tongue shaped fleshy obtuse with an erect tooth towards the tip. Callus in the spur-mouth thick and large decurved fleshy with two crura from the back attaching it to the back wall of the spur. No septuma. Column short, broad. Anther broad oblong. Pollinia globose, pedicel linear oblong, disc ovate acuminate.

Perak at Kamuning, Sungei Siput (A. D. Machado).

*Saccolabium bicrure*, n. sp.

Stem stout 3 inches long, roots long, leaves coriaceous lorate blunt distinctly retuse 4 inches long ¾ inch wide. Panicle 8 inches long branches few, peduncle rather stout. Flowers rather distant ¼ inch across. Bracts fleshy ovate persistent short. Sepals oblong obovate obtuse fleshy. Petals narrower linear oblong all olive yellow. Lip violet, side lobes quadrate with an ol long limb, midlobe fleshy ovate cordate, tip rounded fleshy, grooved above with a fleshy central ridge running back to the back wall of the spur and ending in a thickened pubescent callus and a septum of the spur. Dorsal callus a broad curved fleshy ridge pubescent at the top. Column broad short, with two vertical oblong quadrate rostellar wings, porrect. Anther large and broad with a A shaped ridge on the tip front broad truncate retuse. Pollen eliptic with a short broad pedicel and a disc of 2 very large truncate oblong porrect wings.

Borneo, Sarawak (Matang) on coffee trees. H. N. Ridley.

*Saccolabium ramosum*, n. sp.

Leaves lorate 7 inches long ¾ inch wide blunt obscurely unequally bilobed. Panicles over 6 inches long of 3

slender long branches. Flowers numerous ¼ inch long to tip of spur, yellow with brown stripes, sepals lanceolate, lateral ones oblique keeled the keel running out into a mucro petals much smaller and thinner. Lip shorter than sepals, side lobes falcate acute, midlobe lanceolate with a callus on the tip, dorsal callus reniform laterally flattened. Spur long straight narrow cylindric obtuse. Column oblong quadrate with short truncate arms. Anther small thin ovate. Rostellum arms shorter than column arms oblong quadrate truncate.

Sarawak, Bidi, cultivated in a garden, but collected in the neighbourhood (Ridley).

This species seems most closely allied to *S. javanicum* Smith.

*Dendrocolla alba*, n. sp.

Stems 3 to 4 inches long, with long slender and numerous roots. Leaves lorate fleshy dark green 1 to 2 inches long ¼ inch wide, obtuse. Scapes 4 inches long slender green raceme ¼ inch long thickened. Bracts ovate acuminate quaquaversal flowers 1 to 2 open at a time, ¾ inch across, expanding widely white, pedicels ¼ inch long. Sepals lanceolate acute. Petals narrower and shorter, narrowed at the base. Lip ¼ inch long saccate, lateral lobes curved short blunt distinct edged with clubbed hairs, midlobe little longer rounded blunt excavate, base of lip saccate grooved, callus in centre of the lip at the base of the midlobe oblong truncate; white with light brown blotches in the saccate portion and light brown spots on the side lobes and midlobe outside, and on the tip of the callus. Column oblong white with a narrower free foot blotched pale brown. Anther skull shaped. Pollinia ovoid, pedicel very short and broad.

Perak Kamuning, Sungei Siput (Machado) on old coffee trees. This pretty little plant with its numerous scapes bearing one or two white star like flowers at a time is allied to *D. trichogottis* Ridl. the common Singapore plant,

and much resembles it when out of flower. The flowers are larger and quite white, not of the yellowish color of the common species, and the lip is different.

*D. ciliata*, n. sp.

Stem an inch or more long. Leaves crowded dark green fleshy 6 elliptic obtuse narrowed a little to the base 2½ inches long ¾ inch wide. Scape slender 2 inches long racemose part not thickened. Bracts minute ovate acute rather distant flowers opening singly, pedicel ¼ inch long green. Sepals oblong obtuse hyaline yellow tinted orange ¼ inch long. Petals narrower and shorter lip as long, side lobes erect rather long oblong white edged with long hairs, midlobe short conic fleshy all whitish. Column short, no foot or arms, anther helmet shaped beaked deep orange red. Pollinia 2 orange color ovoid shortly stalked, pedicel oblong flat indented at the sides disc about ½ its length triangular pale orange yellow, Clinandrium flat with 2 orange triangular thin flaps.

Perak Kamuning (Machado). Occurs with the last.

*Trichoglottis valida*, n. sp.

Stem 2½ feet long, stout. Leaves elliptic fleshy blunt 3 inches long 1¼ inch wide, sheaths ribbed ½ inch long. Flowers solitary from the base of the internodes with a few small ovate to bracts at the base, pedicel slender ⅜ inch long. Sepals falcate obtuse spathulate ⅜ inch long. Petals obovate spathulate obtuse broader at the tip, all yellow with red blotches. Lip half as long as the sepals, lateral lobes oblong obtuse taller than the column, between them and parallel with the column an ovate oblong pubescent callus flat and thin, midlobe oblong with a round tuft of yellow hairs tip deflexed acute, spur very short blunt. Column short straight thick with a short erect tooth on either side, (apparently crimson) Pollinia globase.

Borneo, Sambas River. (Micholitz).

*Acriopsis borneensis*, n. sp.

Plant forming a dense mat with innumerable slender roots. Pseudobulbs ½ inch long oblong elliptic somewhat flattened dull green leaves 2 rarely 3 elliptic obtuse dull dark green rather fleshy 1 inch long ½ inch wide. Scape lateral 6 inches long with about 25 flowers rather crowded. Pedicels ¼ inch long. Dorsal sepal narrow hooded oblong subspathulate ¼ inch long. Laterals connate into a similar shaped organ. Petals obovate spathulate blunt broader, all yellow with dark red spots on the back faintly showing through. Lip a little longer than the lower sepals, free portion of base narrow linear greenish yellow, limb pandurate, side lobes triangular subacute spreading, midlobe obovate rounded callus on base of the midlobe oblong truncate with very short teeth retuse and grooved almost double, all white pubescent with a little violet on the callus and centre of the lip. Column as tall as the dorsal sepal, clinandrium with a long oblong truncate bilobed hood dull red apex yellow. Rostellum conic acuminate almost subulate dull red tipped yellow as long as hood and well below it, stigmatic arms longer thick tips flattened dull red tipped yellow. Pollinium single pearshaped yellow forming an angle with the very narrow long filiform pedicel, disc very small yellow, base of column pale green.

Borneo Sarawak; on Matang, collected June, 1903, flowered H. B. Singapore, March, 1904.

Allied to *A. purparea* Ridl. and *A. densiflora* (Lindl.) but very distinct in the form of the lip. The coloring resembles that of *A. Ridleyi*.

SCITAMINEÆ.

*Globba unifolia*, n. sp.

Rhizome creeping and throwing up stems 2 inches apart, stems 4 to 6 inches, tall, covered with pubescent sheaths ½ to 1 inch long. Leaf solitary erect ovate acute glabrous 6 to 8 inches long 3 inches wide narrowed to a

petiole ½ to 1 inch long. Panicle from the axil of the leaf decurved, dense, 2 inches long, pubescent. Bracts oblong ovate pubescent, ½ inch long calyx funnel shaped ⅛ inch long with very obscure teeth, unequally bilobed pubescent. Corolla tube twice as long, lobes oblong hooded. Staminodes similar. Lip very short subspathulate bilobed apices rounded. Filament long slender nearly ¾ inch long, anther spurs 4 linear acuminate acute, the upper ones larger than the lower ones.

Tringanu, Bundi (E. Rostado).

This belongs to quite a distinct group of Globbas, remarkable for the solitary erect leaf, from below which hangs the dense short panicle. An allied species was obtained by Dr. Keith at Bangtaphan in Siam.

*Camptandra angustifolia*, n. sp.

Small tufted plant, 3 or 4 inches tall. Leaves lanceolate acuminate dark green 2½-3 inches long 1 inch wide narrowed at the base. Petiole ½ inch long Bracts ovate acute convolute 1¼ inch long, green, one or two on a stem. Inner bract. (Bracteole) ½ inch long enclosing a single flower. Calyx tubular white shortly 3 lobed, lobes ovate ciliate at tip ¼ inch long, corolla ¾ inch long. white tube dilate upwards, lobes oblong white at tip, under ½ inch across. Lip obovate rounded, bilobed, lobes rounded 2, thickened yellow ridges in limb. Staminodes oblong spathulate. Anther long curved white, as in *parcula*. Stigma large white.

*C. parcula* var. *angustifolia*, Ridley, Journ. Roy. As. Soc. 32, p. 195. Borneo, Sarawak, Matang, (Haviland Cm. Mi) Ridley. On rocks.

This plant of which I had only seen dried specimens from Dr. Haviland's collection, I found also myself in rocks on the mountain Matang and flowered them in the Botanic Gardens Singapore. It is quite distinct from *C. parcula* the flowers being only half as large. In some specimens there is more than one outer cup shaped bract.

each bract containing several flowers, and each flower being partially enclosed in another green bracteole of somewhat similar shape.

*Gastrochilus parvus*, n. sp.

A small tufted plant with bright green lanceolate leaves 4 inches long and 1 inch wide with rather darker nerves. Flower spike central with numerous brown lanceolate bracts. Calyx lobes rather long lanceolate pubescent white. Corolla tube $\frac{3}{4}$ inch long slender white dilated upwards and tinted pink lobes oblong white $\frac{1}{4}$ inch long. Staminodes linear oblong rounded white. Lip longer obovate oblong tip rounded white entire with a central yellow bar pink on each side. Anther thick oblong white back pubescent, with a fleshy white almost obovate crest.

Sarawak Bidi, flowered in the Botanic Gardens, June, 1904.

This little species is allied to *G. Hallieri* Ridl. *Kæmpferia anomala* Hallier Bull. Herb. Boiss VI pl. 9, 3, but it differs from that species in its entire lip, pubescent stamen and the distinct fleshy crest.

*G. reticosa*, n. sp.

Stem creeping short, throwing up branches, each bearing a single leaf and an inflorescence. Leaf petiole slender 3 inches long, grooved above, blade ovate subcoriaceous base cordate apex acute with about 10 pairs of raised veins and close conspicuous reticulations, 3 inches long 2 inches across, bright green, beneath paler pubescent spike shorter than the petiole $1\frac{1}{2}$ inch long outer sheaths enclosing the base of the leaf, innerbracts lanceolate acute. Flowers small opening singly. Petals linear lanceolate $\frac{3}{16}$ inch long yellow. Lip rounded spathulate base narrow limb $\frac{1}{4}$ inch wide rounded bilobed, base white with a yellow bar running to the limb which is pale violet. Staminodes half as long as the petals reflexed linear oblong obtuse, yellow minutely pubescent,

Stamen white pubescent filament short. Anther oblong retuse, not crested.

Sarawak, Bidi (H. N. Ridley), Fl. H. B. S., Nov. 22, 1904.

Near *G. Hallieri*, Ridl. This little plant is very distinct in its rigid pretty reticulated foliage.

*G. plicata*, n. sp.

A large plant for the genus. Stems tufted. Leaves distichous sheaths split 3 inches long with a broad thin margin. Petiole 4 to 5 inches long stout. Blade ovate acute 12 inches long 6 inches wide light green above beneath paler, plicate. Spike shorter than the petiole, covered with subdistichous sheaths bearing a small green ovate blade at the top. Flowers opening singly. Corolla tube 1 inch long white lobes narrow linear acute $\frac{1}{2}$ inch long. Staminodes subspathulate obtuse rounded 1 inch long $\frac{1}{2}$ inch wide light yellow. Lip 1 inch long oblong obtuse with up curved sides tip rounded entire, yellow with a cherry red band at the base and a similarly colored blotch at the tip or a broad band the whole length of the lip. Stamen shorter, white. Anther oblong with no distinct crest, tip rounded, entire. Stigma clubbed.

Kelantan, Kwala Lebir. (Dr. Gimlette). The plant sent by Dr. Gimlette flowered in November 1904. It is evidently near a plant I found at the foot of Gunong Pantai in Johore formerly and may possibly be identical, but I never saw flowers of that species nor was able to grow it. The plant is allied to *G. pandurata*.

*Alpinia Murdochii*, n. sp.

Stems five feet tall. Leaves elliptic lanceolate acuminate base broad 7 inches long 2 inches wide very closely ribbed pubescent above, paler and closely pubescent beneath, keel prominent, petiole very short hairy, ligule oblong truncate hairy, sheath pubescent, hairy along the edge. Raceme terminal four inches long, rachis and pedicels golden hairy, pedicels $\frac{1}{2}$ inch long. Bracteole

broad ovate half an inch long, glabrous within, hairy outside. Calyx white half an inch long tubular, lobes short ovate, pubescent, hairy at the base. Corolla short twice as long as the calyx tube very short, much shorter than the calyx white, upper sepal oblong hooded with a thick blunt boss on the top, the other two narrower oblong obtuse, all white finely dotted red. Lip shorter obovate three lobed, side lobes broad truncate, margins undulate, midlobe narrow, blunt bifid white base of lobes thickly dotted with red, and five elevated violet purple towards the tip. Filament broadly linear short. Anther as long thick, emarginate at tip and crestless yellow spotted red on the back. Style filiform. Stigma cup shaped, staminodes very short and obscure.

Selangor, Semankok Pass, Feb. 1904. (A. M. Burnmurdoch), Sempang Mines (Ridley).

This species is remarkable for the shortness of its lip which is little longer than the stamen.

### Burmanniaceæ.

*Thismia arachnites*, n. sp.

Succulent saprophyte, Stem 1-3 inches long creeping. Flowers 2-3 bracts lanceolate acute $\frac{1}{4}$ inch long. Peduncle in flower nearly half an inch long. Bracteoles shorter than bracts but similar. Perianth tube urn shaped, narrowed at the base $\frac{3}{4}$ inch long, $\frac{3}{8}$ inch wide, semi-transparent with numerous vertical ribs and numerous alternate transverse bars, conspicuous during life, all whitish with 6 red vertical streaks in the upper part, ring distinct and from round the mouth yellow. Calyx lobes short, rounded earlike, petals developed into long slender white tails $1\frac{1}{2}$ inch long. Stamens deflexed rising close to the mouth, oblong $\frac{1}{4}$ inch long, with an oval perforation close to the base, and numerous short teeth at the tip. Anthers very small style, short, thick, 3 lobed. Capsule cupshaped $\frac{1}{4}$ inch long and as wide, edges thickened. Peduncle thickened, fleshy.





Perak in dense forest just above the tea gardens Larut Hills, February, 1904.

AROIDEÆ.

*Raphiedophora falcata*, n. sp.

Stem woody ⅓ inch through. Leaves coriaceous lanceolate falcate acute base cuneate or hardly narrowed inaequilateral 8-9 inches long 1 inch wide, midrib prominent, nerves fine very numerous but not very prominent indistinguishable into primary and secondary nerves. transverse nervules not visible. Spathe green, not seen. Spadix sessile over 1 inch long thick nearly ½ inch. Pistils oblong, top rounded not hexagonal. Stigma circular in an elevated ring, "yellow." "Ovary 1 celled with 2 imperfect partitions. ovules numerous."

Siam Bangtaphan (Dr. Keith), climbing up trunks of trees.

I have also leaves of what appears to be this from the Malay peninsula (Cantley's) collection, labelled "Jarnom Antan" and said to be used as an anthelmintic in children, the root being rubbed up in water and applied to the head, but I have never met with it in the Malay Peninsula myself.

*Curculigo racemosa*, n. sp.

Leaves lanceolate acuminate with a long point plicate, bright green, glabrous, above 18 inches long 3 inches wide, with small scattered hairs at the back, petiole 4 inches long hairy. Raceme erect 4-5 inches long, base 1½ inch wide, hairy with brown wool. Flowers distant spreading, reflexed after flowering about 16. Bract base oblong above long acuminate ½ inch long pale green edged with brown, hairs. Pedicel and ovary a little shorter brown hairy. Petals and sepals similar, oblong, linear, blunt, ¼ inch long, sepals slightly broader, bright yellow above, brown, hair, on the keel and tip beneath. Stamens shorter,

filaments linear, abruptly bent in the middle sigmoidly then ascending. Anthers orange linear, cells divaricate at base. Style very short half as long as the filaments. Stigma very small capitate.

Borneo, Sarawak on Mt. Matang. (H. N. Ridley).

FLAGELLARIEÆ.

*Joinvillea malayana*, n. sp.

A tall reed-like plant with numerous stems in a tuft about 6 to 8 feet tall, ¼ inch through hollow and leafy. Leaves very stiff plicate linear acuminate, narrowed at the base, bright green, glabrous 18 to 24 inches long 2 inches wide, sheaths smooth. Panicle terminal spreading 8 inches long with sinuous hairy branches. Flowers ⅛ inch long, sessile or nearly so. Sepals 3 ovate keeled subacute with a small point ciliate at the tip. Petals 3 as long oblong truncate ciliate. Stamens 6, (one abortive). Anthers linear oblong, bases emarginate, filaments about half as long, ovary conic with a stout style, 3 shorter plumose stigmas. Fruit a very small globose red berry succulent, 3 seeded, seeds round.

Perak, Thaiping Hills, at the Cottage. Abundant in dry soil.

Selangor, Semangkok Pass. This also occurs on Mt. Matang in Sarawak where it was collected by Mr. Bartlett.

This remarkable plant belongs to the small order *Flagellarieæ*, and is closely allied to *Flagellaria* a common sea shore climbing plant known as Rotan Binni here. Three other species of the genus are described, two from the Sandwich islands and one from New Caledonia so that the discovery of a fourth from the Malay Peninsula is of no little interest. The plant itself might easily be taken for a grass with its reed-like hollow stems and plicate leaves, like those of *Panicum plicatum* but much stiffer and the panicle of small flowers is not at all unlike that of a grass till their structure is examined. Curiously the Malayan species is more nearly allied to one of the

Hawaian species than to the New Caledonia one. I cannot recall any parallel case of such a distribution of any genus in our flora, unless one compares it with the large genus *Cyrtandra* in *Gesneraceæ* which attains its maximum of developement in the Sandwich islands and spreads through the Malay islands as far as to the peninsula where it dies out towards the North.

I am indebted to Mr. A. B. Rendle of the British Museum for aid in identifying this very curious plant.

PALMÆ.

*C. Lindeni*, Hort.

This rattan from the Philippines is only known from its foliage as a pot plant, in cultivation. A full grown female plant has flowered several times in the Botanic Gardens Singapore, so I herewith describe it. The plant itself so exactly resembles *C. lobbianus* Becc. of Singapore that it is impossible to distinguish it when out of flower. The stem is about 12 feet long densely covered with the sheaths which are densely bristly brown. The rattan has joints 3 inches long 1 inch through; the flagella about 10 feet long covered with half circles of black tipped hooks except on the very slender narrow sheaths about 3 or 4 on each flagellum. The leaf is about 3 feet long, petiole 6 inches and $\frac{3}{8}$ inch wide flat above and covered with brown scurf armed with short sharp thorns along the edge, and longer needle like ones at the base. Leaflets very numerous and close alternate equidistant 8 inches long $\frac{3}{4}$ inch wide linear setaceously acuminate green above white beneath with scattered black bristles above and beneath on the nerves and tip. Spadices 2 or 3 erect $3\frac{1}{2}$-4 feet tall, peduncle $\frac{3}{4}$ inch wide whitish scurfy armed with a circular thorns $\frac{3}{4}$ inch long or less along the edges. Spathes silvery scurfy 5 or 6 unarmed lower ones 9 inches long with a long irregularly torn limb 2 inches long. Branches recurved about 6 paniculate 6 inches long. Spathels scurfy tubular not dilated upwards with no limb. Spikes

1 inch or more long on branchlets 3 inches long, flowers (female) not distichous but irregularly arranged, crowded. Spathels very short green. Calyx swollen short very shortly 3 lobed corolla half as long again, lobes oblong obtuse. Staminodes represented by a thin membranous corona with short filaments. Style short and thick, arms stout.

The whole inflorescence more resembles that of a Licuala such as *L. spinosa* than that of a rattan.

*Pinanga limosa*, n. sp.

A small dwarf single-stemmed palm one to two feet tall with strong roots. Stem $\frac{1}{4}$ inch through woody distinctly ringed internodes 1 inch long. Leaves a foot long 6 inches wide pale green, sheaths broad, petiole 3 inches long, blade entire obcuneate deeply bifid at the top or more often split into about 5 lobes, lower ones acuminate or truncate with numerous short teeth, nerves numerous conspicuous. Spathe not seen, spadix deflexed simple or with 3 branches slender 2 inches long. Flowers distichous alternate about 28. Calyx lobes (female) short broad orbicular. Fruit small $\frac{1}{4}$ inch long, drying subacute, white oblong.

Singapore, Selitar; Johore on Sungei Tebrau.

This little palm inhabits wet sloppy forest swamps along river banks. It is allied to *P. disticha* Bl. but the stems are solitary and it does not branch, the leaves light green and often cleft, the spadix often 3 branched and the fruit smaller and blunter.

*P. riparia*, n. sp.

Stems several distant 12 to 13 feet tall $\frac{1}{2}$ to $1\frac{1}{2}$ inch through, internodes 3-4 inches long. Leaf about 3 feet long, rachis angled scurfy, blade pinnate with 3 lateral lobes and one terminal bilobed one, lobes linear or linear lanceolate acuminate with 3 to 6 nerves 3 to 9 inches long, $1\frac{1}{4}$ to 2 inches across tip entire long acuminate, terminal lobes broad coarsely toothed many nerved.





Spadix decurved, peduncle stout $\frac{3}{4}$ inch long, branches 3 to 4 stout 6 or 7 inches long, flowers close distichous. Females globose $\frac{1}{8}$ inch long. Sepals orbicular ribbed, petiole barely longer. Fruit $\frac{1}{4}$ inch long oblong obtuse, top ringed. Stigmas very short capitate.

Johor, swampy forest on the banks of the Sungei Tebrau near Castlewood.

This palm is allied to *P. coronata* Bl. but has a very much smaller spadix. It grows in very wet mud close to the river banks.

*P. acaulis*, n. sp.

Stem very short hardly 4 inches long covered with the fibrous sheaths of the leaf bases, solitary. Leaves few, petiole obscurely angled 22 inches long, blade entire cuneate tip bifid toothed 15 inches long 6 inches wide, nerves 13 pairs, base unequally narrowed, terminal lobes 4 inches long with 4 to 6 acuminate teeth; or pinnate with three pairs of linear oblong acuminate lobes not toothed, 4 nerved 8 inches long rather distant opposite, lowest pair 1½ upper 3 inches wide terminal pair connate. All light green glaucescent at the back. Spathes sessile oblong 2 oblong acute boat-shaped strongly keeled brown erect 1½ inch long $\frac{3}{4}$ inch wide. Spadix 2 inches long densely covered with male flowers, at first quite concealing the females. Males white $\frac{1}{4}$ inch long calyx very short 3 lobed lobes acute; petals subsymmetric ovate triangular acute. Stamens 8 or 12 shorter than the petals, filaments short conical rachis crimson. Female flowers small opposite, petals and sepals orbicular rose pink. Stigma irregularly oblong capitate white. Rachis in front lengthening to 6 inches. Fruit cylindric narrow $\frac{3}{4}$ inch long.

Perak, Kamuning Woods, Sungei Siput (Machado).

This most curious dwarf palm was discovered in abundance by Mr. Machado in the woods at Kamuning where he has already discovered so many other remarkable plants. It is unique in Pinangas in its exceedingly short

stem covered by the old leaf sheaths from which arises a short thick double spathe which just protrudes above the sheaths. When it opens, the short stout spadix is densely covered with ivory white male flowers, which fall off next day, and the bright crimson rachis bearing small pink female flowers is seen. The rachis then elongates remaining pink and bearing its small cylindric fruit. A number of live plants have been sent by the discoverer to the Botanic Gardens Singapore, where it seems likely to do well.

*Licuala lanuginosa*, n. sp.

Leaf with a stout bluntly 3 angled petiole over a foot long ¼ inch through, thorny for about half its length, thorns conic short brown, blade 6 lobed, lobes linear stiff with short broad teeth 13 inches long one inch wide, with 3 or more ribs on each. Inflorescence a foot long thick covered with silvery wool, branches 2 or three with a short thick peduncle, spikes stout 2 inches long thick woolly spathes silvery lacerate. Flowers numerous sessile ⅛ inch long globose. Calyx broadly cylindric shortly 6 lobed covered with dense shinning hair. Petals little longer ovate lanceolate silky. Staminal cup 6-lobed.

Johor, on Gunong Pulai, and Gunong Panti (Ridley).

This species is allied to *L. kiungana* Becc., but the flowers are larger.

*Borassus Machadonis*, n. sp.

Stem as tall and nearly as thick as a cocoanut palm, ringed with the remains of the fallen leaves. Leaf stalk 12 to 15 feet long 1½ inch thick unarmed deeply channelled green, blade suborbicular 4 feet across about 6 feet long split nearly to the base into sharp edged linear acuminate lobes. Male inflorescence of three cylindrical catkins 14 inches long 1¼ inch thick. Bracts oblong with an ovate obtuse limb. Calyx 3 lobed, ¼ inch long, as long as the bract, lobes oblong unequal, one with a broad rounded top, the others acute, split about half way down. Corolla

with three linear narrow lobes edges rounded fringed, ⅜ inch long. Stamens filaments short, anthers long linear narrow acute. Female spadix 12 in. long with a broad flattened orange peduncle 3 inches long. Flowers about 20, crowded, terminal portion of spadix barren, about 2 inches long. Bracts 2 broadly semicircular 1 inch long and as wide, (in young fruit) edges lacerate, orange brown outside, yellowish white within stigmas. Young fruit obovoid dark green with 3-4 white lines corresponding to cells sepals obovate orange 2 inches long paler at base. Petals longer rounded truncate. Seeds 3 oblong woody, outer face convex inner face obscurely 3 angled, 3 inches long 1 inch through covered with rough brown hair.

Perak in dense forest at Kamuning near Sungei Siput, (Machado). Native name "Chang-hai."

The genus *Borassus* has hitherto been considered to consist of a single species *Borassus flabelliformis* L. This species including *B. æthiopum* Mart. is a native of Africa and probably India. A sacred tree of the Hindus it has been carried all over the east, and more or less established itself chiefly in sandy places near the sea, or in temple grounds. It does not thrive in damp spots nor does forest country suit it at all. It is evidently a desert plant by nature. This plant is known as Lontar by the Malays. Lon being an old name for Pohon "tree," and Tah being the Hindu Tal, the name of the Borassus. I was therefore much surprised when Mr. Machado sent me a leaf and seeds of a *Borassus* he had found in the forests of Kamuning in some quantity. He has since sent me complete material of this remarkable palm, which proves to be quite distinct from the well-known Lontar or Palmyra palm. It differs from that species in the entirely thornless petiole, and the blade of the leaf split to the base in the three lobed calyx, and narrow petals of the male flower, and in the long narrow anthers. I can find no description of *Borassus* to agree with this. All the Indian descriptions are undoubtedly those of *B. flabelliformis*, Rumphius

Herb. Amboin. I p. 4-5. t. 10 describes and figures "Lontarus domesticus" which is certainly the same plant, and Loureiro's *B. flabelliformis* is the same. The latter author describes also a *B. tunicata* from the Decan and Guzerat, which has unarmed petioles and is referred by Wendland to *Pholidecarpus*. But the description does not fit the new Borassus and no *Pholidocarpus* is known from that region and what Loureiro intended is quite obscure.

CYPERACEÆ.

*Mapania longispica*, n. sp.

A large tufted plant. Leaves linear gradually acuminate 5 feet long 1 inch wide, margins with close pale thorns. Scape stout over a foot tall with a head of 4 to 8 cylindric spikes. Bracts ovate acute ribbed $\frac{3}{8}$ inch long. Spikes $1\frac{1}{4}$ inch long $\frac{1}{4}$ inch through cylindric. Bracteoles ovate obtuse ribbed down the back. Squamellæ $\frac{3}{8}$ inch long fringed. Style trifid slender, nut trigonoglobose, endocarp hard black, ectocarp separable green.

Perak, Larut Hills, above the Tea Gardens (Ridley 11424) on banks in the forest.

This plant is allied to *M. kurzii* Clarke which occurs in the same district. It differs in its large cylindric spikes and stouter scape.

*M. valida*, n. sp.

Rhizome stout woody $\frac{3}{8}$ inch thick. Leaves numerous linear acuminate $2\frac{1}{2}$ feet long $\frac{3}{4}$ inch wide edges roughly thorny point very long and slender, bases of leaves shining dark brown. Scapes stout $4\frac{1}{2}$ inches long with numerous sheaths at the base. Heads of 3 or 4 spikes oblong conic over $\frac{1}{2}$ inch long bracts ovate ribbed $\frac{1}{4}$ inch long. Bracteoles ovate dark brown ribbed. Squamellæ linear margins ciliate. Style trifid. Nut pear-shaped with a ridge on one side pale brown very small.

Singapore Bukit Timah and Changi (Ridley 1714, 5998). In forests.

This is allied to *M. Wallichii* Clarke a common plant in our woods but has longer more slender peduncles and usually 3 or 4 spikes in a head but one of the Bukit Timah specimens has only a single spike in the head. In the flora of British India Vol. VI. p. 682. Mr. Clarke refers this to the Javanese *M. multispicata* Clarke based on *Pandanophyllum humile* Zoll. Verz. Ind. Arch. ii. 61 but in a letter received lately he states that it is a distinct species. I am indebted to him for pointing out the distinction of both of these species from any described, and for notes on them.

*Mapania montana*, n. sp.

Stem short and thick emitting stolons 4 inches long covered with acuminate sheaths. Leaves linear base narrowed into a distinct petiole, apex abruptly acuminate, petiole 4 inches long, blade 22 inches long 2 inches wide 3 nerved, point 2 inches long armed with short thorus. Scape 15 inches long rather slender. Bracts 3, lowest oblong ovate $1\frac{1}{2}$ inch long, with an abrupt point 3 inches. Capitalum $1\frac{1}{2}$ inch through of about 40 heads densely crowded $\frac{1}{4}$ long. Bracteoles oblong rounded at the tip long ribbed margins lacerate. Squamellæ narrow, edges ciliate. Style shortly trifid.

Borneo. Mt. Kinabalu, Penokok, Haviland 1801, at 3000 feet alt.

Apparently only a single specimen of this very distinct plant was obtained and it is not mentioned in Stapf's account of Dr. Haviland's plants. It has the foliage of *M. humilis* Naves, but the inflorescence resembles that of *M. palustris*.

GRAMINEÆ.

*Isachne sylvestris*, n. sp.

Stem ascending geniculate rather stout 9 inches tall. Leaves lanceolate acuminate with a broad base, 3 inches long $\frac{1}{2}$ inch wide, margins thickened glabrous above, pubescent beneath, sheaths hairy. Panicle 6 inches long

much branched, 3 inches across, branches slender subwhorled spikelets solitary $\frac{1}{10}$ inch long subglobose. Glume I ovate ciliate ribbed Gl. II ovate obtuse cuspidate with short bristles Gl. III elliptic obtuse shorter coriaceous paleate male Gl. IV similar but pubescent, female. Grain free brown.

Dindings in Woods at Telok Sera (Ridley 7265).

*Ischæmum læve*, n. sp.

A tall grass resembling *I. magnum* in habit, nodes glabrous. Leaves linear lanceolate acuminate from a broad base 3 inches long $\frac{1}{4}$ inch wide edge scabrid at the tip glabrous, ligule short bilobed, mouth of sheath ciliate. Spikes 2 appressed 4 inches long spikelets in pairs one sessile one shortly pedicelled $\frac{1}{4}$ inch long joints and angles of pedicels shortly white ciliate. Glume I. narrowly elliptic oblong submucronate smooth edge ciliate, II. lanceolate shorter edge ciliate III. these lanceolate ciliate paleate IV. shorter lanceolate with a short straight pale awn.

Singapore at Galang (Ridley 9143).

I do not think this can be a form merely of *I. magnum* Rendle. The first glume is narrower and not wrinkled at all.

*Mnesithea pubescens*, n. sp.

Stems slender three feet tall nodes ciliate leafy. Leaves linear acuminate 6-12 inches long $\frac{1}{4}$ to $\frac{1}{2}$ inch wide softly pubescent spikes slender on long slender pubescent peduncles 4 inches long solitary $1\frac{1}{2}$ inch long yellow breaking below the node so that each joint is shortly stalked, internodes short $\frac{1}{8}$ inch long dilated upwards bearded at the base. Spikelets 2 sessile with a narrow linear pedicel between longer than the internode Glume I ovate lanceolate acute, tip curved base channelled with 4 or 5 grooves above, with numerous linear perforations from each of which rises a cilium. Gl. II

lanceolate acute as long. III lanceolate hyaline smaller. IV smaller hyaline.

Johor, Batu Pahat at Minyak Buku (Ridley 11017).

There are two other species only known of this curious genus *Mn. laevis* Kunth. of India and China and *Mn. geminata* Ridl. (*Rottbellia geminata* Hack,) a native of Pahang. This species from the rocky cliffs on the Western coast of Johore differs from the other two in the pubescence of its leaves and spikes, and in the curious perforations each containing a hair on the outer glume.

*Pollinia rupestris*, n. sp.

A perennial grass several feet tall, stout, nodes bearded. Leaves acuminate 7 to 8 inches long, ½ inch wide narrowed to the base glabrous above covered with scattered hairs beneath, mouth of sheath hairy, ligule short truncate. Spikes several erect appressed 4 inches long fragile stout. Spikelets callus not ciliate. Glume I ovate lanceolate boat shaped mucronate keel ciliate, margins hyaline. II similar in shape with strong bristles on the back cartilaginous ribbed reddish. III hyaline shorter oblong, palea narrower pubescent. IV short hyaline with a long twisted awn from between two linear acuminate paints.

Johor, on rocks at Batu Putih near Batu Pahat Ridley (1018).

*Bambusa magica*, n. sp.

Stems about 20 feet tall and half an inch or less through, branches slender tufted at the nodes, internodes 1 inch long leaves lanceolate acuminate glabrous 3 inches long ½ inch wide, margins scabrid, the thickened base narrowed into a very short petiole sheath auricled with white cilia on the auricles. Spikelets in short panicles lanceolate pale ¾ inch long ⅛ inch across, empty glume I ovate lanceolate. Flowering glumes 7 lanceolate mucronulate keeled, margins ciliate, palea shorter lanceolate bifid tips ciliate, lodicules 3 lanceolate ciliate.

Perak Gunong Berumbun (Wray 1566) "Bulu Perindu."

This plant is referred to the Chinese Hedge Bamboo (*B. nana* Roxb) by Gamble Ann. Gard. Calc. VII. 41. But it is very improbable that Wray's plant could have been introduced on Berumbun and the adjacent hills and it differs from *B. nana* in its taller stem, quite glabrous leaves and less strongly ribbed glumes ciliate at the edges. Wray writes of it (Journ. Roy. As Soc. S. br. vol. 21. p. 139· "The small bamboo called by the Malays "Bulu Perindu" is extremely plentiful on Berumbun and comparatively scarce on the other hill. I was fortunate in being able to collect flowering specimens of this elegant little bamboo which is credited with mystic properties by the natives and is, much in request by love-lorn swains whose mistresses are cold and irresponsive."

*B. elegans*, n. sp.

A tufted bamboo with stems 15 to 20 feet tall, and $\frac{1}{4}$ inch through green and red like, nodes elevated, internodes over a foot long. Culmsheaths narrow acuminate a foot long $1\frac{1}{2}$ inch across, ligule ciliate with the cilia in tufts, limb extremely narrow linear acuminate slightly scabris $1\frac{1}{2}$ inch long $\frac{1}{16}$ inch across. Leaf and flowering branches whorled with numerous sheaths at the base. Leaves lanceolate acuminate 2-6 inches long $\frac{1}{2}$ inch wide finely ribbed and minutely pubescent on the back base rounded with a very short petiole, ligule short ciliate. Spikes numerous subremote not whorled or crowdep. Bracts oblong dry and pale, outer one $\frac{3}{8}$ inch long, inner ones smaller more ovate mucronulate, spikelets $\frac{1}{2}$ inch long. Basal one of three empty glumes. Second flower $\frac{1}{4}$ inch long. Glumes I and II lanceolate green tipped with purple edges ciliate palea not keeled edges ciliate enclosing a conical cylindric pistil with 2 short stigmas. Lodicules none. III. Flower male, glumes and palea as in II. Stamens 6, anthers with two points at the tip. Flowers IV and V abortive. Rachilla flattened dilated upwards ciliate. Fruit not seen.





Selangor. On the Ulu Semangko hill, (Burn-Murdach. Ridley).

This elegant tufted bamboo is abundant at the top of the big hill above the Semangko pass. As nearly all the flowers both in Mr. Burn-Murdoch's original specimens and the ones got afterwards by me have nearly all the flowers destroyed by insects I have had some difficulty in making out the structure and am not very certain as to which genus this bamboo should be referred to, but I think it should be referred to *Bambusa*. The stems are tall and slender, half scandent among the low trees of the hill top.

*Dinochloa montana*, n. sp.

Culms long and scrambling slender smooth with whorled branches. Leaves lanceolate acuminate 8 inches long, one inch wide glabrous, tips scabrid bases unequal slightly alternate into a short petiole $\frac{1}{8}$ inch long, sheaths smooth flattened striate with a low callus minutely pubescent, not ciliate. Panicle long, rachus very pubescent with distant heads of spikelets $\frac{1}{2}$-$2\frac{1}{2}$ inches apart spikelets $\frac{1}{8}$ to $\frac{1}{4}$ inch long, straw colored one flowered. Empty glumes 4 ovate obtuse strongly keeled and mucronate rachilla stout flexuous. Flowering glume lanceolate, ribbed minutely mucronate. Palea oblong with two nerves not keeled nor ciliate. Lodicules 6 spathulate oblong strongly nerved edges ciliate. Grain oblong beaked narrowed at the base channelled along one side, beak minutely hairy.

Penang Hill forming dense masses at an altitude of 3000 feet, in forest (Ridley 7064, 7265, 10171).

This slender climbing bamboo differs from *D. Tjankorreh* in its larger spikelets with 4 empty glumes, and lanceolate flowering glume, and the presence of 6 lodicules.

*Dendrocalamus pendulus*, n. sp.

Culms about 60 feet tall arched, 3 inches through, with long slender pendulous branches dark green below

glaucescent above, walls rather thick, internodes 9 inches long nodes rough with short projecting rootlets at the base. Culmsheaths 6 to 9 inches long hard, covered at first with white woolly appressed hairs in fascicles, limb narrow lanceolate acute 4 inches or more long caducous. Auricles large dark red with long white cilia. Leaves lanceolate oblong acuminate thin glabrous 5-6 inches long $\frac{3}{4}$ to inch wide, base broad truncate, edges scabrid at the tip, petiole short thick $\frac{1}{16}$ inch long sheaths minutely pubescent, top truncate ligule very short, with few or no cilia at the mouth. Panicle of simple spikes of heads on the ends of the leafy branches with occassionally one or more branchlets. Heads of spikes crowded $\frac{1}{2}$ inch long, with broad sheaths yellow with a short limb at the base. Spikelets $\frac{1}{8}$ inch long glabrous shining oblong cylindric numerous 1 flowered. Empty glumes ovate glabrous 2. Flowering glumes longer lanceolate. Palea as long 2 nerved not keeled convolute, lanceolate. Lodicules none. Stamens 6, anthers oblong minutely apiculate filaments narrow linear free. Ovary conic short hairy, style simple hairy.

Selangor Pahang Track (Ridley 8482) alt. 2000 feet.

This superb bamboo with its long arching culms and long pendulous branchlets has long been cultivated in Singapore Botanic Gardens, but has not flowered there. The flowers are described from a plant in high forest in Selangor, quite resembling that cultivated in the Singapore Gardens. The young culm sheaths are covered with fine white hair, as if coated with mildew. This disappears in the full grown sheaths altogether.



# On a Second Collection of Coins from Malacca.

By R. Hanitsch, Ph. D.

**With one Plate.**

In a former number of this Journal* I described a collection of coins which in the year 1900 had been obtained during excavations near the mouth of the Malacca river, and which had been collected together by the Hon'ble W. Egerton, Resident Councillor of Malacca, and presented by him to the Raffles Museum. The most interesting of these, previously not described, were certain Portuguese tin coins from the time of King Emmanuel (1495-1521) and John III (1521-1557), the earliest of which must have been struck by Albuquerque soon after his occupation of Malacca (1511). Towards the end of last year (1904) the Hon'ble R. N. Bland, Resident Councillor of Malacca, succeeded in obtaining more coins from the same locality which he generously presented to the Raffles Museum. He tells me that the dredger brought them up imbedded in a kind of blue clay, possibly a little to the sea-ward of the place where Mr. Egerton's were found.

The most remarkable of these are six huge tin coins, struck in two varieties, giving neither the date nor the name of a ruler, but having a pattern similar to that of the coins issued by King Emmanuel and John III., namely with the cross on the obverse and the sphere on the reverse. The one variety (see figs. 1 and 1*a*), of which there are five specimens, measures from 35 to 36 mm. in diameter, 6 mm. in thickness and weighs from 37 to 41·5 grammes. On the obverse, around the cross, is the inscription NOSTRE SPES VNICA CRVX XPI. The mistake in NOSTRE is very extraordinary, but such errors are not uncom-

* "On a Collection of Coins from Malacca." Journal, Straits Branch, R. Asiatic Society, No. 39, June 1903, pp. 183 to 201, 2 plates.

mon on old Portuguese coins. The last three letters XPI, if taken as Latin characters, would be difficult of interpretation. Taken as Greek they would stand for Christ, although they are then more usually written in the form of a monogram ☧. For this interpretation I am indebted to Mr. Robert Sewell, *M. R. A. S.*, who in January last passed through Singapore and kindly examined the coin.

The inscription on the reverse is more difficult to read, the last few letters especially being much worn on all five coins. The letters seem to be SMPRDEPV SORDIEM. The first four characters I take for an abbreviation for 'semper.' The next seven letters may stand for 'Depulsor,' the letter 'l' being omitted or being covered by part of the device, viz. the projecting axis of the globe. The word 'Depulsor' occurs in a few Latin inscriptions, as an epithet of Jupiter, the averter of evil. The last four or five letters are very indistinct. 'Diem' would hardly give any sense, and I am inclined to think that the inscription should read something like 'Semper Depulsor Deus'.

The other variety (see figs. 2 and 2*a*) of which there is only one specimen, is of an unusual shape, the diameter of the obverse being 37 mm., but that of the reverse 35 mm. only, giving to the coin the shape of a truncated cone, and this appearance is heightened by the sharp edges of the coin. Its thickness is 6·5 mm. and its weight 45 grammes. The coin further differs from the first variety by the shape of the cross, the outlines of its arms being not parallel to each other, but converging towards the centre, and by the sphere on the reverse being somewhat smaller. The inscription, however, is the same on the two varieties.

Very similar to these is a much smaller coin (see figs. 3, 3*a*, 4 and 4*a*), also of tin, 24 mm. in diameter, 1·5 mm. in thickness and 4·1 grammes in weight. It again shows the usual devices of the cross and the sphere. The reverse bears no inscription, whilst the obverse has the words NOSTRAE SPES VNICA, resembling thus the above described large coins by another, almost incredible, mistake. The word 'crux' is omitted, but may be understood from the figure of the cross in the middle of the inscription. There were three specimens of this coin.

The other Portuguese coins collected by Mr. Bland are identical with those described in my former paper. I therefore merely give the number of the specimens found with their references:

Eight coins from the reign of King Emmanuel (1495-1521), loc. cit. p. 194 pl. I, figs. 2 and 2 a.

Eight coins from the reign of King John III (1521-1557), loc. cit. pl. II, figs. 8 and 8 a.

Five coins from the same reign, loc. cit. pl. II, figs. 9 and 9 a.

Seven coins from the same reign, loc. cit. pl. II, figs. 10 and 10 a.

Three coins without incription, loc. cit. pl. I, figs. 3 and 3 a.

One coin, with the letters B. A. and three crossed arrows between them, loc. cit. pl. II, figs 12 and 12 a.

In addition to these there are about twenty-five Malay coins, most of them, however, too much worn to be deciphered. One of them bears the inscription ملك العادل and is almost indentical with the one described in my former paper (p. 185, pl. I, fig. 5). The Rev. Dr. Luering has kindly pointed out to me that the reading I gave at the time of this inscription, viz. "maliku 'l-'âdil" and the translation 'The just king,' were based on a wrong vocalisation of the first word which is not to be read 'malik,' i. e. 'king', but 'milk' or 'mulk,' that is 'possession,' 'property,' and is often used with regard to coinage in the sense of the French 'fonds.' He further says that the word 'âdil' which originally means 'just,' 'righteous,' has in this connection the secondary meaning of 'equal weight,' 'full weight,' so that the inscription might be translated 'full weight currency,' or 'legal tender.'

I wish to point out that the figures of the accompanying plate are faithful reproductions of the originals, in natural size, and that their indistinctness is not due to the photographer and printer, but to the condition in which the coins were found. Only by examining the coins in different lights was it possible to decipher their inscriptions.

*Explanation of the Plate:*

| | | |
|---|---|---|
| 1. | Obverse | See page 213 |
| 1 A. | Reverse of the same | " " 214 |
| 2. | Obverse | " " " |
| 2 A. | Reverse of the same | " " " |
| 3 and 4 | Obverses | " " " |
| 3 A and 4 A | Reverses of the same | " " " |



Fig. 3

Fig. 3.A.

Fig. 1.

Fig. 1.A.

Fig. 2.

Fig. 2.A.

Fig. 4.

Fig. 4.A.

R. HANITSCH.

Tin Coins from Malacca.



# Lightning Conductors.

G. E. V. Thomas, A. M. Inst. E. E.

## Notes on Material and Method of Erecting in the Straits Settlements.

1. The number of many-branched terminals and massive rods and cables of pure copper which adorn most of the buildings, indicate that the importance of attempting to safeguard against the effect of lightning discharges is generally appreciated. A study of the attempts too frequently reveals a considerable lack of knowledge of modern methods.

2. Numerous cases which have come under the writer's observation are applications of a theory, which obtained general credence twenty or thirty years ago, that a conductor "protected" a defined area bearing some direct relation to its height. A "law" to this effect was actually laid down and found many adherents ——possibly because of its simplicity.

3. In other cases a quite disproportionate amount of attention is paid to the earth connection, sometimes at the expense of the material and work above ground. Tests which show a resistance of more than an ohm or two, though made, frequently, during dry weather, are often considered sufficient to condemn a conductor satisfactory in other respects.

4. The writer has been called upon to inspect a large number of conductors upon Government and Municipal buildings during the past few years, and is forced to the conclusion that, in a large majority of instances, much greater protection could be provided for a smaller initial outlay.

5. To illustrate this the case of a certain powder magazine in the Colony may be cited. As is usual for buildings of this sort, very considerable care had been exercised by the Authorities in the provision of elaborate conductors-and a very considerable sum expended upon material and work. Broad strip of pure copper is the material used and this is run along the main

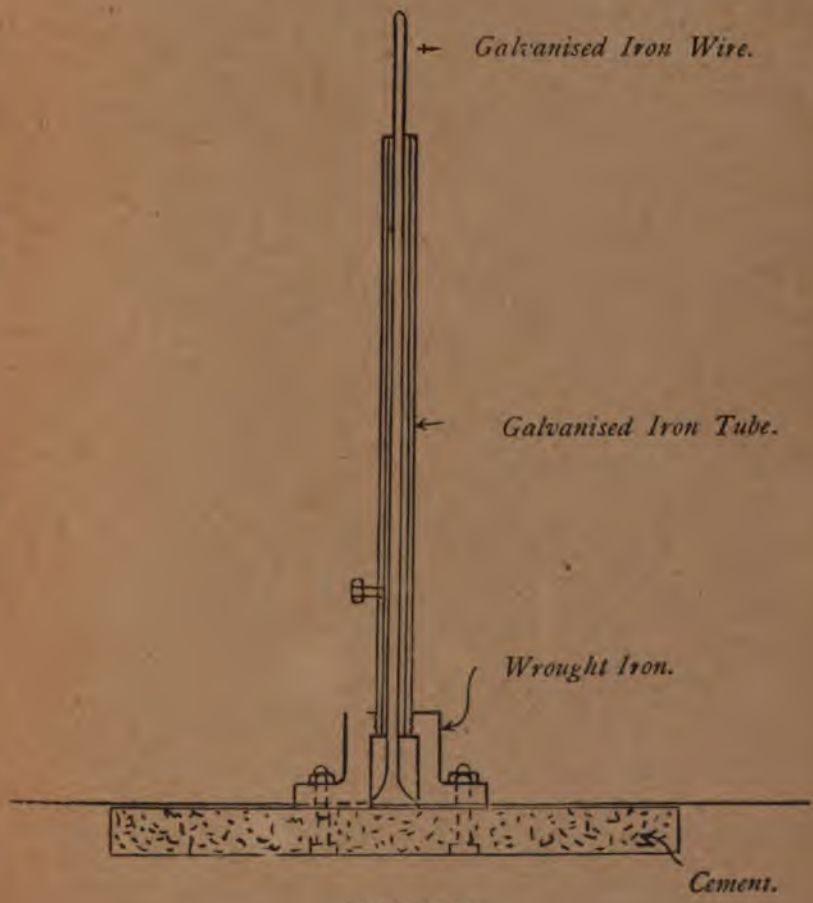
ridge of roof and connected to eight points from which similar strip is taken down to eight earth connections. As the brief suggestions which follow may serve to indicate, seven of these "earths" are quite unnecessary and, further, had an equivalent weight of copper been used in the form of a light stranded wire, very much better protection would be afforded.

6. The determination of the size and section of the conductor, whether of copper or iron, depends more upon mechanical strength and durability than conductive properties. There is little danger of the wires becoming melted and, if the system is inter-connected, the fusion of certain lengths would not affect the utility of the conductor as a whole to any serious extent. The network advocated by the writer would deal with succeeding discharges whereas a break in a single conductor has frequently been the cause of damage. Fusion of part of the network would not escape notice and, in a sense, would be satisfatory in affording proof that the conductor had seen active service.

7. The material used by the writer is galvanised iron in the form of a light cable composed of seven strands of number sixteen gauge wire. (7/18) This affords ample mechanical strength, is pliable and unobtrusive in appearance. Zinc saddles are used to secure it to ridges of roof and down walls to earth. It is frequently possible to make use of the down pipes from roof gutters by running the conductor through them.

8. In order to make the system as far as possible jointless as regards the work on the roof, which usually escapes supervision, the writer has recently designed a tubular point through which the conductor itself is drawn, doubled, and allowed to project an inch or so from the top. A set-screw at the base provides sufficient contact without the necessity of soldering—often so awkward an operation on a roof that it is left undone altogether. The point is practically formed of the conductor itself and joints become unnecessary above ground.

9. The number of points and the amount of wire used for any building must depend upon the degree of safety desired and the funds available for providing it. The fact that many points and much wire mean better protection should be thoroughly recognised. In practice something must be sacrificed to


Galvanised Iron Wire.
Galvanised Iron Tube.
Wrought Iron.
Cement.

*SECTION.*

appearance in the case of ordinary buildings and the multiplication of points, even of the short pattern now advocated, cannot be carried to excess. Prominent ridges should be provided with one for every fifteen or twenty feet of length; every corner should also have its point and all should be connected together and to the "earth."

10. This connecting up of points results in a net-work over the whole roof which forms the nearest feasible approach to the continuous metallic screen held by modern views to constitute an absolute safeguard.

11. As suggested in paragraph 7 the down pipes from rain guttering may frequently be used for bringing down the wires from roof net-work to earth. The connection to roof net-work should be made by inserting the wire into a corner point, where it will meet two net-work wires. Soldered joints will still be unnecessary as the wires will be in close contact throughout the length of the point.

12. The question of earth connection has next to be considered. This is usually held to be of primary importance and various rules are laid down which state the exact maximum resistance permissible. It is, no doubt, desirable that the resistance should be reasonably low so that disturbance may be avoided, but whether it be of two ohms or fifty matters very little. The effect of a poor earth connection was recently demonstrated at the Civil Prisons in Singapore, where a discharge taken by the conductor blew out the soil over the earth connection, leaving a hole about three feet in diameter and two deep. This earth was formed of the coiled end of the conductor—a heavy galvanised iron cable—and was buried to a depth of a couple of feet only, on a slope. Moist soil would have been reached by taking it a little further away to lower ground and burying it a little deeper, but, on enquiry, the writer found that the workman responsible had miscalculated the length required, cut the cable and hurriedly buried the end. The instance serves to show that no great harm results from imperfect earth connections if they are placed sufficiently far from foundations.

13. It is rarely a matter of great difficulty or expense—especially where galvanised iron is the material used—to continue the conductor to permanently damp earth. If it is laid

in a strench twelve or fifteen inches deep, and taken to a point not less than one hundred feet from the building where damp soil may be reached without an excessive amount of excavation, the earth connection may be said to be perfect. By taking the conductor this distance from the building not only is the risk of damage due to disturbance near foundations averted, but an increased area of earth connection is obtained.

14. Except in the case of very small buildings it is advisable to have at least two connections between the roof net-work and the earth. In extensive buildings the writer has made a practice of bringing down six or more. In these cases it is occasionally necessary, from motives of economy, to join the down wires together and continue one only away to the "earth" There is no difficulty in making thoroughly good, soldered joints in galvanised cable on terra firma, but, if funds allow, it is a much better plan to have a continuous trench round the building into which all the down wires are taken and then continued, laid up together, away to the deep "earth."

15. As regards the comparative cost, it is interesting to note that, for the same outlay not less than twenty-five times as much surface can be covered by the stranded galvanised wire suggested as would be by a single copper rod of one inch in diameter, such as is frequently used. In fact it is perfectly safe to state that, taking into consideration the increased amount of labour, and additional details and accessories, required for net-work system, quite twenty times better protection may be obtained for the same outlay.

16. Many interesting illustrations of the inefficacy of single conductors for complete protection may be quoted from local records. In one instance, which came under the direct observation of the writer, some damage was done to the part of the roof of an extensive range of buildings on which three independent conductors were fitted. Such cases afford sufficient proof that single conductors do not effect their purpose in taking discharges quietly away; on the other hand there can only be negative evidence that buildings protected on the net-work system, with many points, are not liable to be damaged.

17. The writer trusts that these notes will be of service and would conclude by making the following suggestions:—

*a.* Use as many points as possible (paragraph 9)—three short points placed ten feet apart on a roof ridge are much better than one elaborate and expensive three-pointed terminal.

*b.* Use galvanised wire of small section and interconnect all points on the roof. The lighter the gauge of wire used the greater the area of roof covered for the same outlay. (paragraph 7).

*c.* Avoid sharp bends and turns in the wire. Side flashes are apt to jump off from an abrupt bend or kink, which may cause damage to the adjacent masonry.

*d.* Connect in the roof gutters. Actual jointing is unnecessary and it will usually be found convenient to have the wire from corner points laid along the guttering and thence through down pipes to earth.

*e.* Take the earth connection away to a deep "earth" even if it is necessary to go a considerable distance from the building. The additional area of "surface" earth is useful, and the cost of wire and extra trenching is small.

*f.* Avoid joints as much as possible. Joints between the ordinary points and the wire forming the conductor are frequently made disgracefully, and, in numerous instances, the writer has found an actual break in continuity. The difficulty of supervising explains this—in fact the work is often left entirely to native workmen —and the remedy which suggests itself is that of adopting some practically jointless system.

Penang, *September 10th, 1904.*

# Short Notes.

## Note on the occurrence in Selangor of three Vertebrates new to the Malay Peninsula.

Among zoologists at home one constantly hears the remark that our knowledge of the vertebrate fauna of the Malay Peninsula must now be very nearly complete and that but few more species can remain to be added to our lists.

How wide this is of the true state of affairs is shewn by the fact that within the last month, the Dyak Collector attached to the Selangor Museum, has discovered two striking forms which although previously known from Borneo have not hitherto been recorded from the mainland of Asia.

The species are :—

1. *Draco maximus*, Blgr.

This fine species of flying lizard, the largest of the genus, was originally described by Mr. Boulenger (P. Z. S. 1893, p. 522, pl. xlii. fig. 1) from a single male specimen collected by Mr. Hose on Mt. Dulit, Sarawak at a height of 2000 feet. Specimens from the same locality and also from Mts. Matang and Penrissen are in the Sarawak Museum and there is a single female in this Museum, collected at Balingean, some distance up the Sarawak River.

Two individuals, male and female, were captured in deep jungle about nine miles from Kuala Lumpor and agree well with the original diagnosis and with the above-mentioned specimen from Balingean. In the freshly killed lizards the general colour above was moss-green, pale yellowish beneath ; gular appendage of the male dull terracotta, the lateral folds black, streaked with white : in the female the appendage was very pale lemon yellow, which rapidly faded into white Total length of both specimens about 370 mm.

*2. Chrysophlegma mystacale*, Salvad.

Among some miscellaneous bird-skins in the Museum I recently discovered a woodpecker collected by Dr. Duncker on the Semangko Pass, where the trunk road to Pahang crosses the main range at a height of 2700 feet. The specimen was shot on the 29th May 1901 and is sexed female, though this is probably an error of the native skinner. It appears to belong to a species described by Count Salvadori as *Chrysophlegma mystacale*, from collections made in the Padang mountains, West Sumatra, by the famous Italian Botanist Beccari. Subsequently it was obtained by Carl Bock, a Swedish Collector in the employ of Lord Walden in much the same locality, and later on by Dr. H. O. Forbes at Hoodjoong, in the mountains of the Palembang Residency, further to the south. Outside this very limited district I can find no records of its occurrence, and it is somewhat unexpected to find it reappearing in the mountains of the Peninsula, which possess a distinct species (*Chrysophlegma wrayi*) of their own.

General colour above bright olive green, darker on the head and crown, the latter tinged with rufous; nuchal crest, golden yellow. Beneath, greyish olive, darker on the chest and becoming almost black on the throat; chin with a slight rufos tinge. Sides of the head dark greenish grey, malar stripe very pale yellow. Primaries black, broadly barred with rufous, the innermost crimson on their outer webs exteriorly. Tail feathers black, the outermost with an oily lustre beneath Total length :—11 inches; wing 5. 4.

*3. Ptilocercus lowii*, Gray.

PEN-TAILED TREE SHREW.

The occurrence of this small mammal is of even greater interest than that of the preceding as it adds to the Peninsular list a genus that has hitherto been supposed to be specially characteristic of the Bornean group of islands. But even in Sarawak where the species was originally

discovered some fifty years ago it seems to be rare and but little appears to have been recorded of its habits.

Our specimen, an adult female, was captured in its nest in a hollow bough in the same jungle as Draco maximus. The nest was merely a tunnel about three inches in diameter and eighteen in length, roughly lined with fibrous materi and with green leaves. The general colour of the animal is a pale greyish brown above, somewhat yellowish beneath with an ill-defined dark stripe running from the muzzle to a little beyond the eye. The tail is naked for two-thirds of its length and covered with scutes like that of a rat; the terminal third is clothed with whitish hair over half an inch in length, whence the trivial name of the species is derived.

Dimensions :—Head and body, 133 ; tail, 167 ; ear 19 ; hind-foot, 34 mm. Examination of a series will not improbably prove that the Peninsular form is separable from the Bornean race, but distinctions based on an unique specimen are apt to be fallacious.

*H. C. Robinson.*

Selangor State Museum,
Kuala Lumpor.

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## Occasional Notes.

*Pratincola maura (Pall.)*

A specimen of the Indian Bush-chat was shot by Captain H. R. Baker at Stagmount, Singapore on Dec. 22. 1904. Hitherto it has been collected as far down as Mysore and the Andamans but Singapore must now be recorded as its most southerly extension. As the species is now included is the avifanna of the Malay Peninsula I give below a description of the plumage in which it was obtained locally.

*Male.* Forehead, crown, nape, hind neck, back, scapulars, most of the wing-coverts, and upper rump black,

broadly margined with fulvous, the black predominating on the forehead and crown and the fulvous on the nape; the innermost wing-coverts pure white; primary wings coverts and winglet black edged with whitish; quills rusty black, the primaries narrowly, the other quill-broadly edged with pale rufous on the outer edge and tip; lower rump and tail-coverts white broadly tipped with orange-rufous; tail black, edged and tipped with pale rufous, broadest on the outer feathers; lores, sides of the head, chin and throat black, the feathers of the chin and throat strongly tipped with fulvous-white and a curved line of the same colour running from the nostrils over the eye; a patch of white feathers tipped with orange-rufous on each side of the neck; breast orange-rufous; remainder of the lower plumage pale rufous, palest on the centre of the abdomen and lower tail coverts; under wing-coverts and axillaries black with narrow white tips; inner edge of the wing quills whitish.

It is dark brown; bill and feet black (*Capt. H. R. Baker*). Length 130 millimetres; tail 53; wing 68; tarens 20; bill from gape 16.

*C. Boden Kloss.*

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## Nesting of the Little Grey Woodpecker.

The little grey woodpecker *Jungipicus canicapillus* is a very common bird in Singapore and may often be seen running about dead boughs in search of insects. The nest and eggs of it have however never been described. Captain H. R. Baker however espied one evidently nesting, in the dead bough of a tree (Vernonia arborea) in the Botanic Gardens at a height of about 15 feet from the ground. He first noticed it making the hole in the first week of March, and on the 24th he and I went to the tree and cut it across to get the eggs which were by them unfortunately almost ready to hatch. The eggs 2 in number were deposited at the bottom of the hole. Without any lining or attempt at a nest. They were rounded, but pointed at the small end and measured ·67 by ·54 and ·65 by ·54 respectively.

The bird must nest very frequently as it is so common and I have often seen it making holes in trees as if to nest and on one occassion, knew of one which seemed to roost regularly in a hole it had made in a dead bough, in the Gardens, where it could be seen every evening sitting in the mouth of the hole, but though it was the breeding season. I found neither eggs nor young birds in the nest.

*H. N. Ridley.*

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## Nesting of *Draco Fimbriatus.*

While walking along a jungle track in the forests at Rantan Panjang in Selangor, in August, I came across a nest of this large flying lizard. Mr. Burn-Murdoch who was walking in front called my attention to the eggs, and I found I had stepped on the female lizard which was sitting by the nest and was so much, the color of the dead leaves that I did not see it. The eggs four in number were laid in a depression apparently scooped out by the lizard in the sandy soil. They were oblong with rounded ends 15 mm. long and 8 or 9 mm. thick, quite white.

*H. N. Ridley.*

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## A Wasp attacking a Leaf-mining Caterpillar.

In December last I observed a small species of wasp, of the class that the Malays call Peningat, running about on a young mangosteen leaf which was attacked by a leaf-mining caterpillar. The upper epidermis of the leaf had been raised by the caterpillar on both sides of the midrib. The wasp about ¼ inch long, was tearing the loosened epidermis and eventually crept underneath in pursuit of the grub, which was at the further end of its burrow. It was unable apparently to get across the midrib, and after searching about for sometime came out and as it seemed accidentally in running about on the upper surface of the leaf came across the larva. It immediately tore away the loose epidermis above it and seizing its prey flew off with it. The wasp is

a common species which makes small nests on the under-side of leaves. It has dark red thoraces and a black abdomen with a single yellow ring. That many of the smaller wasps prey on caterpillars is well known. The peculiarity in this case was that it attacked a leaf-miner and absolutely followed up its burrow under the epidermis.

*H. N. Ridley.*

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## On the Fertilization of Grammatophyllum.

On account of the fertilization of *Grammatophyllum speciosum* was published by myself in the Journal of the Linnean Society vol. xx p. 336, where it was shown that the black and red hornet *Vespa cincta* was the usual agent in the transference of pollen from one flower to another The orchid flowers in August and September and I note that this year in the Botanic Gardens Singapore none of these insects are about, but the wild bee *Apis dorsalis* is at work and is an equally good fertilizer. But the insects which are most abundant on and about the flowers are small hymenoptera too small to be able to touch the pollenmasses, and ants, and also the large carpenter bees. *Xylocopa aestuans* and *X. latipes*. These visit the flowers more abundantly than the Apis, going round to each newly opened flower and plunging into it to suck the honey from the base of the lip. These insects however do not remove the pollen. although there seems at first sight no reason for their not doing so. The reason for this is that the lip of the flower is moveable on its base, and though these carpenter bees, much thicker than the Vespa, and Apis would fill up the space between the lip and column were the lip immobile and so touch with their thoraces the pollen masses, their weight on the lip bends it down so that they do not quite touch it, and thus they back out of the flower without removing the pollen. In this case the mobility of the lip is really injurious to the flower, as it allows the carpenter bees to remove the honey without fertilizing the flower, and by so doing preventing an Apis or Vespa who might come later from visiting the honey-less flower. In the wild haunts of *Grammatophyllum* Xylocopas are as plentiful as Apis or Vespa and

would be as good fertilizers, and it would appear that were the lip immobile the Grammatophyllum would secure the use of all three insects and avoid the loss of flowers through the removal of the honey without fertilization. The carpenter bees are thus harmful to this orchid, as it is to other flowers. By persistently tearing open the base of the corolla tube of *Ipomea palmata* to get the honey instead of pushing into the corolla mouth it effectually prevents this plant from being fertilized.

A considerable number of flowers, especially of introduced plants, never set seed, for various often obscure reasons. In some cases however the failure is certainly due to the actions of insects who though taking pollen or honey fail to put the pollen on the stigma. An example is that of *Clerodendron macrosiphon* a native of Zanzibar. It is a shrub with long tubular white flowers with long projecting stamens. The flowers are evidently intended for fertilization by hawkmoths, but as it opens its flowers too early for them they are spoilt by the small Trigona bees who assiduously go round to each stamen and collect all the pollen, without touching the stigma, so that the plant has never so far as I have never seen here produced a single fruit.

*H. N. Ridley.*

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## Errata in "Descriptions of New Species of *Iphiaulax and Chaolta* (*Braconidae*) from Sarawak Borneo.

(Volume 42).

p. 26, 6th line from bottom for "and costa" read "and stigma"

p. 27, 8th line from bottom after "length" add ♂

p. 32, at commencement of 6th line from foot add "of radius"

p. 33, 14th line from bottom. After "apex" add ♀.

p. 36, 7th line from foot for "later" read "lateral"

p. 37, 11th line from top for "*Veneus*" read "*oeneus*"

p. 38, 16th line from foot after "crenulated" add "♀"

p. 40, 14th line from foot add *Iphiaulax nitidiusculus* sp. n.

p 41, 7th line from top before "tarsi" add "fore"
p. 41, 14th line from bottom for "*tafiae*" read "tibiæ"
p. 45, 15th line from bottom for "segments" read "segment"
p. 50, 6th line from top after "MM." add ♀.



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